SEPTEMBER
1950

fueloil & oil heat

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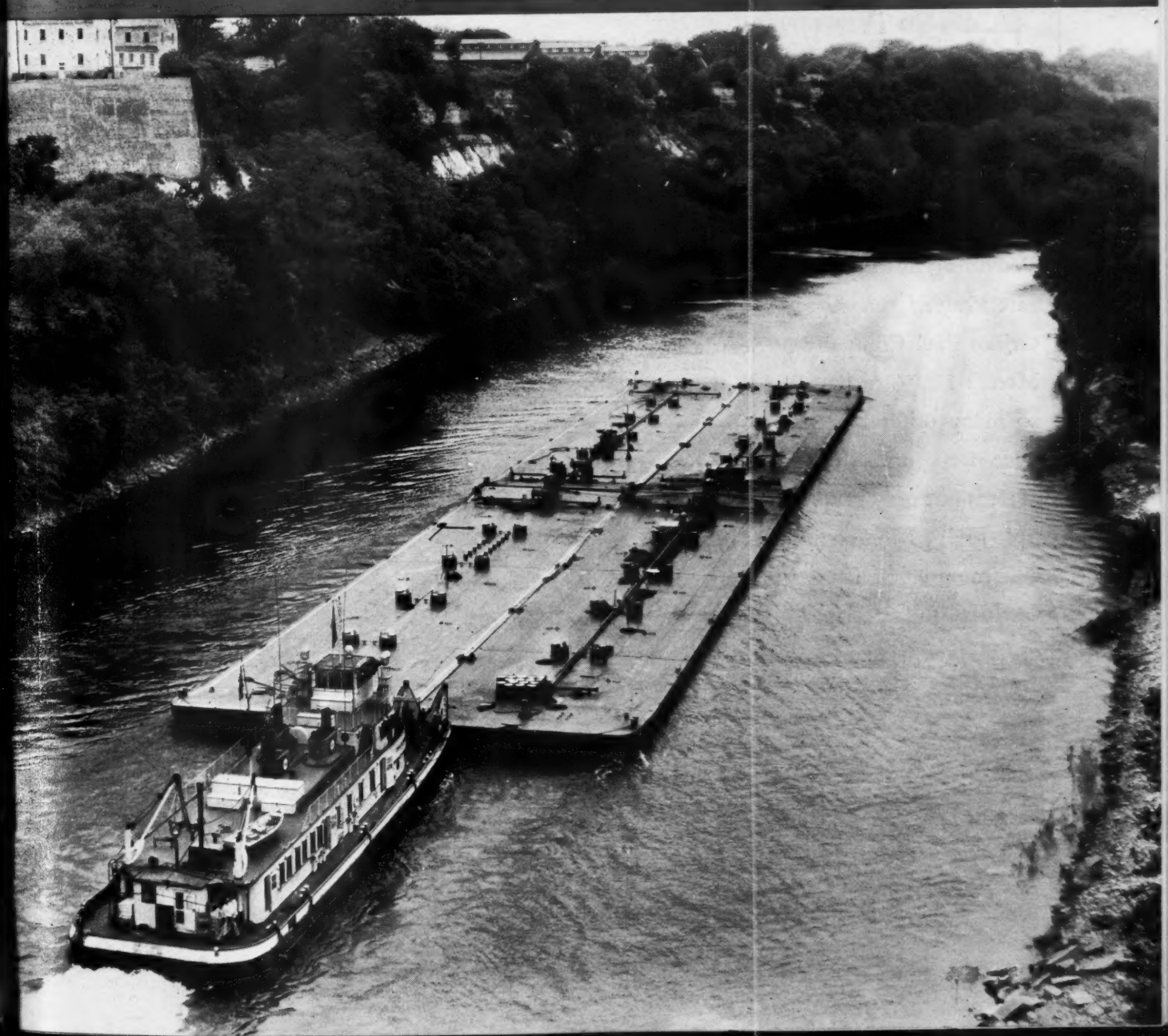
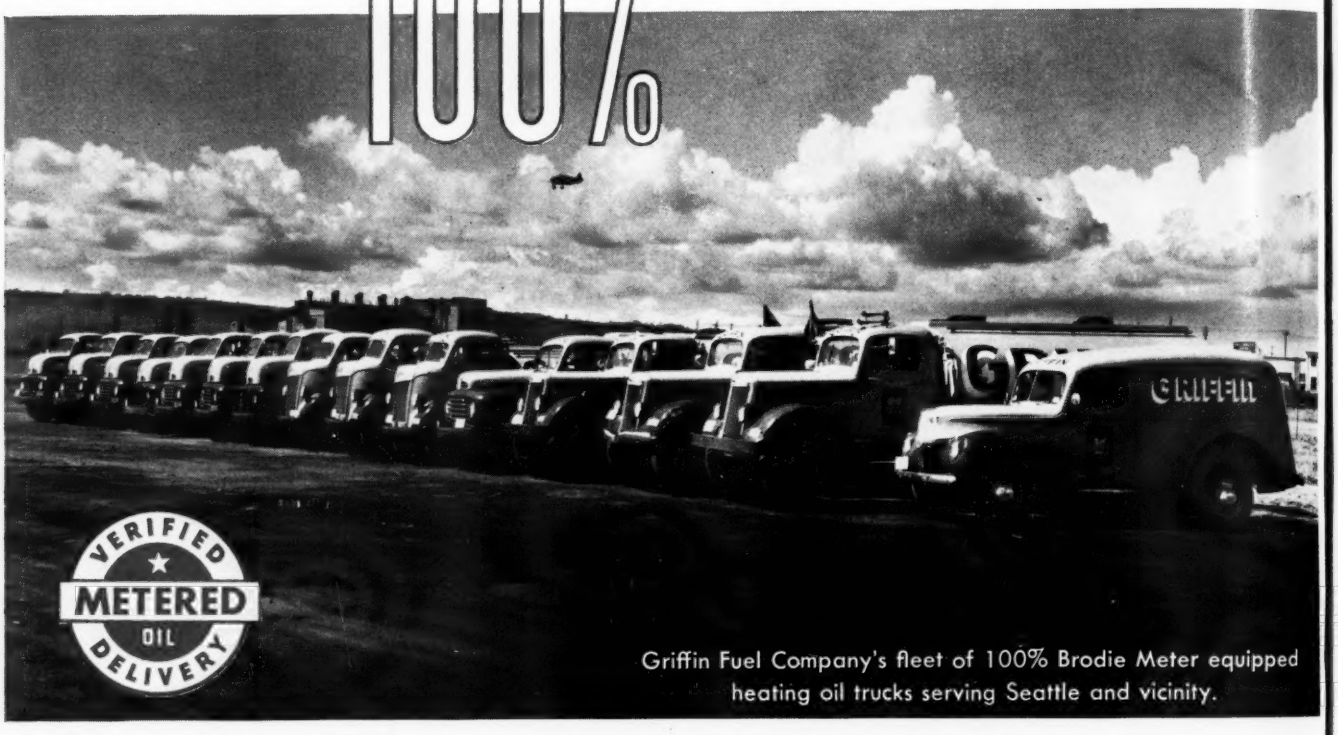


MODERN HEATING OIL FLEET

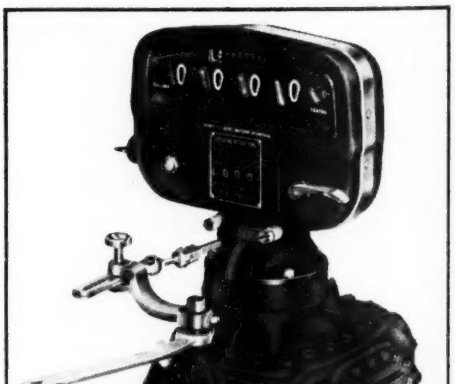
Equipped 100% with BRODIE METERS



Griffin Fuel Company's fleet of 100% Brodie Meter equipped heating oil trucks serving Seattle and vicinity.

- Enjoys over 9 years of Verified Deliveries

Providing heating oil customers with dependably accurate *Verified gallonage deliveries,* over the past 9 years, Griffin Fuel Company of Seattle has employed Brodie Meters 100% on its fleet of delivery units. Typical of so many other large up-to-the-minute fuel dealers all over the country, their experience shows that Brodie Meters not only keep customers satisfied but effect multiple savings and economies in delivery operations. For maximum efficiency, standardize on Brodie Meters, investigate fully today. Write for complete information on the type, size and capacity to meet your needs.



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VOL. 9, NO. 9

fueloil & oil heat

SEPTEMBER

1950

Names in the News

T. A. Crawford has been elected a vice president of the Timken-Detroit Axle Co., and will continue as general manager of the Timken Silent Automatic Div., Jackson, Mich. Mr. Crawford has been with Timken-Detroit since 1926, starting as a retail oilburner salesman. In 1928 he became a factory branch manager, in 1930, advertising and sales promotion manager and in 1934 was promoted to general sales manager of the Timken Silent Automatic Div. He advanced to its general managership in 1944. For many years he has been active in trade associations and presently is a member of the board of directors and chairman of the Public Relations Committee, Oil-Heat Institute.

Benedict Saurino, manager, Sun Oil Company's statistical research department, has been named to head a 15-member State Economic Research Council to help guide Pennsylvania in peace or war. The Council's first duty will be recommending steps to improve the State's statistical services and to report on the feasibility of collecting data not now available.

Walter S. Moellering has become sales manager, Furnace Div., Kalamazoo Stove & Furnace Co., Kalamazoo, Mich. Up until a short time ago he had been sales manager, Armstrong Furnace Co.

W. H. Schneider has been elected vice president-comptroller, Mack Trucks, Inc., New York 1, N. Y. He succeeds J. E. Savacool, who is retiring. Mr. Schneider, also was elected a member of the board of directors.

Norman F. Sorgenfrei recently has been appointed assistant manager of

CONTENTS

SUBJECT	PAGE	AUTHOR
Know Your Financial Ratios	63	F. RAYMOND KRAEMER
Design Slants on Oilfired Units	65	J. W. SCHULZ
Creative Selling Pays Off	69	ROBERT GRAY
Nozzles the Key to Combustion	72	EUGENE O. OLSON
Comparative Fuel Costs	76	
Small Community Oilheating	78	
Supplying Domestic Hot Water	80	LIONEL L. JACOBS
Belabor the Obvious	83	FRED FEIGENBAUM

NEWS		DEPARTMENTS
Government Influences on Fuels	14	
	5	Names in the News
St. Paul Users Increase	64	
	8	Editorial Leaks
Report Large Reserve Capacity	71	
	10	Oilheating Trends
New York Public Hearing on Smoke	75	
	94	Manufacturers' Activities
What is "Non-electric Heating"	86	
	114	Industry Groups
Oilburner Servicing Interpreted Critical	86	
	124	Everyday Snags
More Than Half New Homes Warm Air	90	
	134	New Products
Gulf to Build Largest Cat Cracker	90	
	152	Readers' Problems
Omaha Heating Oil Users 25,594	92	

FRONT COVER: The Motor Vessel "Charles W. Snider, of the Pure Oil Company fleet and tow on the upper Mississippi just a few miles below Minneapolis.

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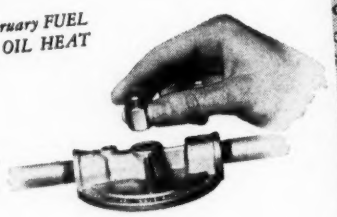
Curing Feed Line Troubles

Answers to the Readers of "Curing Feed Line Troubles"

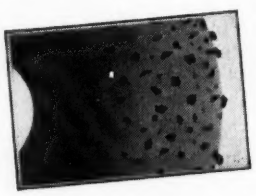
Could the writer of that article have meant Cuno* . . . when he advised using a filter that can be cleaned "in a neat way inside of 15 minutes"?

** in February FUEL OIL & OIL HEAT*



The Cuno MICRO-KLEAN cartridge can be replaced in ONE minute—just one nut to loosen.

. . . when he recommended selling customers on a filter that "will keep the burner in better condition"?



The Cuno MICRO-KLEAN cartridge —resin-impregnated—will not distort or channel . . . holds twice as much dirt . . . guarantees protection of pumps and burner nozzles . . . cuts unbillable service costs.

. . . when he suggested standardizing on one make of filter?

One model of Cuno MICRO-KLEAN fits any domestic fuel installation (straight pipe line connections, 56 GPH UL rating). Can be installed on suction side of pump. One standard cartridge size cuts down inventory.

For a complete "feed line trouble cure" . . . reduced service expenses, a nice profit on each filter and cartridge sale, and completely satisfied customers, standardize on Cuno MICRO-KLEAN Oil Burner Filter Model 1C1.

FOR FREE BULLETIN, MAIL COUPON

CUNO

Oil Burner Filters
Easier to Stock
Easier to Service

Cuno Engineering Corporation
8521 South Vine St., Meriden, Conn.

Please send information on Cuno MICRO-KLEAN Oil Burner Filters and replacement cartridges.

Name.....

Company.....

Address.....

sales, Maid-O'-Mist, Inc., Chicago 41, Ill. He has background of 15 years experience in the heating industry, including positions in the sales and engineering departments of several leading companies.

Donald W. Milestone has been named export manager, Perfection Stove Co., Cleveland 4, Ohio, replacing L. B. Tuttle, retiring after 14 years as head of the company's export division. Mr. Milestone has been with Perfection for the past 3½ years in a variety of departments, most recently as gas and electric range service manager.

Wentworth Smith, who has been with Neptune Meter Co., New York City, for a number of years has replaced James H. Judge, resigned, as assistant general sales manager.

Richard W. Moulton has been elected executive vice-president and a member of the board of directors, Cannon Chemical Co., Inc., Cambridge 41, Mass. With this appointment the company has announced plans for a wider scope of marketing activities on its line, including Rustbuster boiler-water treatment.

William Godley has been named manager of contract sales; *George E. Smith,* manager of the air heater division and *Edward R. Clark,* manager of the automatic oilburner division, in recent personnel changes announced by Peabody Engineering Co., New York City.

Paul E. Cross, 52, president, Waterbury Co. and vice president, Waterman - Waterbury Co., Minneapolis, Minn., died at his home in Minneapolis on August 15 after an illness of two months. He was kown nationally in the heating industry because of his activities as purchasing agent for Waterman-Waterbury. Born in Delavan, Minn., Mr. Cross came to Minneapolis in 1919, following service in World War I, and became associated with Waterman-Waterbury Co., heating equipment manufacturers. In 1937 he also became associated with the Waterbury Co., sales organization for the manufacturing firm.

"The Quaker Maid"—1,500 gal., 3 compartment stock tank mounted on Model F7 Ford. CA 84".

"The William Penn"—1,000 gal., 3 compartment stock tank mounted on Model M16 Studebaker. CA 84".

1,500 gal., 4 compartment de luxe tank mounted on Model F8 Ford. CA 121".

2,500 gal., 4 compartment tank (no rear box) mounted on Model LMU Mack. CA 129".

2,200 gal., 2 compartment unit mounted on Model 152W Brockway. CA 107".

SO GOOD

that 3 out of 4 we build are

REPEAT ORDERS

QUAKER CITY TRUCK TANKS

Stock tank or de luxe streamlined unit, Quaker City is your best buy. Because each Quaker City truck tank is engineered to the exact requirements of the job it is to do, you can count on outstanding performance. Hundreds of Quaker City truck tanks are still serving efficiently after 20 years of operation . . . still making money for their owners.

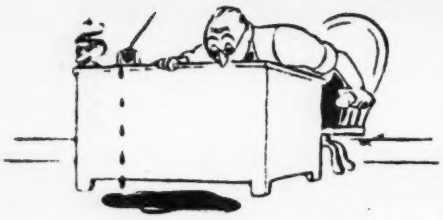
No skimping or cheapening of materials. Extra strength where strength is required. No excess or dead weight to run your operating costs up. No careless welds. Each tank is thoroughly tested at least *twice* after welding.

Quaker City truck tanks give you maximum load with proper weight distribution . . . long, trouble-free performance . . . economical operation. You'll be ahead when you specify Quaker City . . . the truck tanks with the outstanding repeat-order record. Write for complete information.

QUAKER CITY IRON WORKS

Gaul & East Ontario Sts. · Phila. 34, Pa.

ONE OF AMERICA'S LEADING TRUCK TANK BUILDERS FOR OVER 25 YEARS



Editorial Leaks

There has been a growing feeling among oilheating men that steel for gas pipelines could hardly be classed as essential. They believe that in an area like New England oil and coal are doing a good job. Running long gas pipelines under those conditions, and particularly in a defense production period, looks to them a bit silly.

Certainly no one in our industry will disagree with that viewpoint, whether he be in New England or New Mexico.

Some gas industry promoters have thought of it, too. They have been camping on Washington doorsteps, hat in hand. "Please Mister, in the steel shuffle don't forget us." One of the New England pipeline promoters asked the Secretary of the Interior for special consideration on steel . . . didn't get any promises.

The present outlook is that gas pipelines will have to fight for their steel on the same footing as any other civilian industry. There is nothing in sight that would discriminate against them, nor give them special help.

A little later, perhaps next year, the Government will be building some oil pipelines. Private industry will actually build them but they will be Government-sponsored for defense purposes. When that activity starts gas industry orders in the pipe mills may find themselves behind the eight ball.

One of the new defense oil lines is to run from the oil fields of the Canadian prairies to the head of navigation on Lake Superior, with a sideline to the Chicago area refineries. Another is to carry oil from West Texas to California. Then Venezuelan production is to be stepped up, with more pipelines needed. The purpose in all of this is to enlarge Western Hemisphere production and distribution for the military. We must be independent of Middle East oil.

The question is often asked, "What about gas in the Big Inch lines?" The lines were to be kept in shape to convert back to oil in a national emergency. They have been so maintained.

Some members of the National Petroleum Council favor leaving the gas in those lines even in wartime. This would avoid upsetting present gas users. On the other hand, the lines were built because submarines were sinking tankers. If it happens again on any serious scale they will have to go back to oil.

◈

Writing in the *New York Journal of Commerce* at mid-August, W. M. Jablonski, petroleum editor, had this to say: "With price control and allocation powers proposed in Washington, the oil industry can ill afford to run any risk, however small, of a short supply of heating fuel next winter."

There is no question about it, the industry has the crude capacity, the refining and transportation capacity, to make all of the heating oil needed, and more. Knowing this, Congress would be very critical and it would be inclined to look with favor on some type of controls if there is any default whatever.

The question of ample fueloil supplies for next season has been under discussion since early summer. We have largely kept it out of the magazine because we did not expect a shortage, and we did not want newspapers to pick it up and frighten the burner prospects.

It's getting late. Total fueloil stocks are still below a year ago, even after recognizing that dealer and consumer storage capacity is better filled.

There is still plenty of time for the oil industry to increase its yields of distillate and make an abundance of fueloil for even an abnormally cold winter. But time does run out eventually.

True, gasoline has been extra profitable all summer. You couldn't hate a refiner for wanting to turn an honest dollar, any more than you could an oilburner manufacturer. Gasoline stocks, stimulated by lush profits, are now getting high to the point of probable price breaks. Then distillates will look better to the balance sheet.

But big profits or little, the oil industry has enough statesmen, enough gumption to steer clear of Washington when it can avoid the encounter.

Cold weather is not far off. Open up the distillate valves . . . let's go!

Consolidated Edison has a New York generating plant on the East River a stone's throw from the new United Nations group of buildings. Coal smoke gets in the eyes of the workmen on the buildings, and now the company fears the worst for the coming diplomats. In fact it says that the coal gases may poison the air conditioning system. If that would apply to only selected offices, we'd be for it.

Mayor O'Dwyer wrote President Truman at the request of Secretary General Trygve Lie, asking that the generating plant be given natural gas from the new lines headed toward New York. It would stop coal altogether.

The answer was a classic. The President wrote, "It seems to me that if the Consolidated Edison Company really wanted to meet the situation it could do it without robbing the ordinary consumer of cheap fuel." It was a turndown.

Even Truman is imbued with the notion that natural gas for New York consumers is to be a cheap fuel. The only one of the five boroughs now having natural gas is Richmond (Staten Island). There the rate is equivalent to about a 19.5¢ fueloil for home heating. Truman needs enlightenment on the subject from another lobby.

◈

It's a little late but worth telling. Harold Mottram, well liked secretary of the Wisconsin Oil-Heat Ass'n., went to Boston in June to take part in the panel discussion on gas competition for the New England O.H.I. It was hard to coax Harold to come . . . maybe a hunch.

Flying home to Milwaukee from New York he was a passenger on the ill-fated Northwest Airlines plane that was lost in Lake Michigan with no survivors.

But . . . at Detroit they told Harold that with only one Milwaukee passenger they would skip that stop and he would have to pile out at Willow Run airport and take the next plane. Dragging his feet and grumbling, Harold complied. So he's alive and working hard as ever.

◈

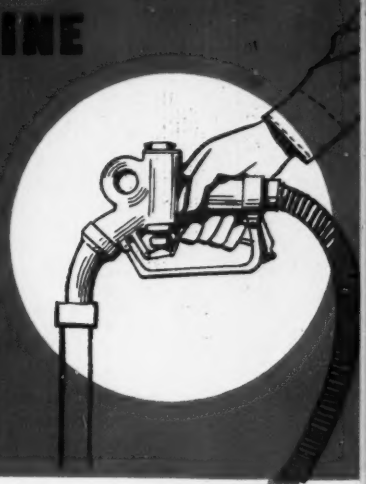
Sign in Madison Ave. show window: "The forgotten man today is the man who stopped advertising yesterday."

SAVE PUMP WEAR SAVE MOTOR WEAR SAVE GASOLINE

WITH THE NEW

REMOTAMATIC

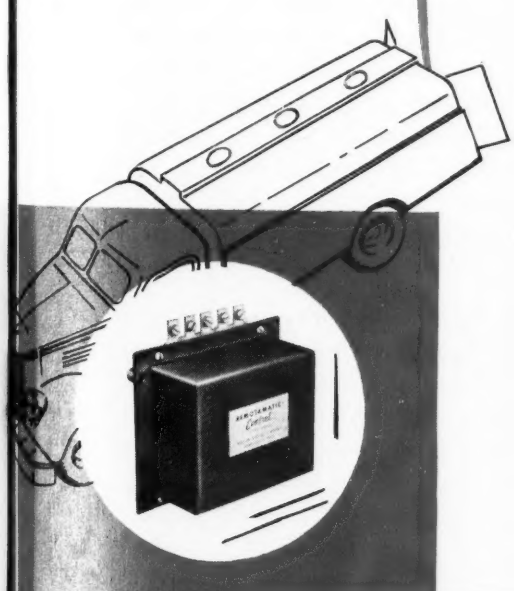
FOR GUN NOZZLE CONTROL OF TRUCK MOTOR AND FUEL PUMP



Opening and Closing of Gun Nozzle Controls Running of Fuel Truck Motor and Pump

Truck motor and delivery pump operation can be controlled right at the fill pipe! Something new, made possible by our REMOTAMATIC Control unit. Motor runs only while oil is flowing into fuel or range storage tank.

When hose nozzle is opened in pumping position, REMOTAMATIC Control automatically starts motor and pump. When the nozzle is closed, or when the meter arrives at a predetermined amount, motor and pump automatically stop.



LENGTHENS PUMP LIFE All the high internal pressure and wear and tear on the pump operating against a closed valve or nozzle is eliminated by REMOTAMATIC Control. Also included with this control is an adjustment that prevents motor "racing." Pumps last longer!

REDUCES HARMFUL MOTOR OPERATION Automotive engineers will tell you that idling speed is more wearing on motors than normal running speed. Over a six month period, REMOTAMATIC Control can eliminate up to 260 hours of this harmful type of motor operation. Motors last longer!

CUTS GAS CONSUMPTION With REMOTAMATIC Control, there is no unnecessary motor running or pump bypassing to consume gasoline. During a day, as much as 2 hours of needless motor and pump operation is saved. Four weeks of such saving yields a full week's worth of gasoline saved. Think of it. Every fifth week, you operate on "free" gasoline!

REMOTAMATIC Control is enclosed in small metal box, easily installed in the cab or under the engine hood of new or old trucks.

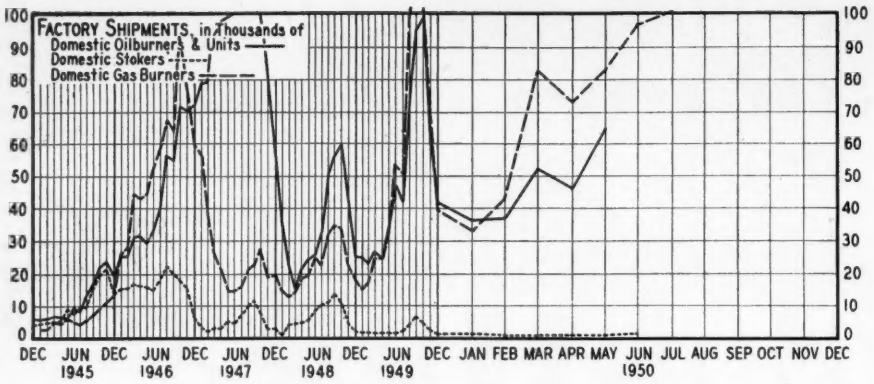
USED IN CONJUNCTION WITH SOLENOID STARTER SWITCH

WRITE TODAY FOR REMOTAMATIC PRICES AND DESCRIPTIVE FOLDER

SCULLY SIGNAL COMPANY

76 First Street, Cambridge 41, Mass.

MAKERS OF VENTALARM® WHISTLING TANK FILL SIGNAL

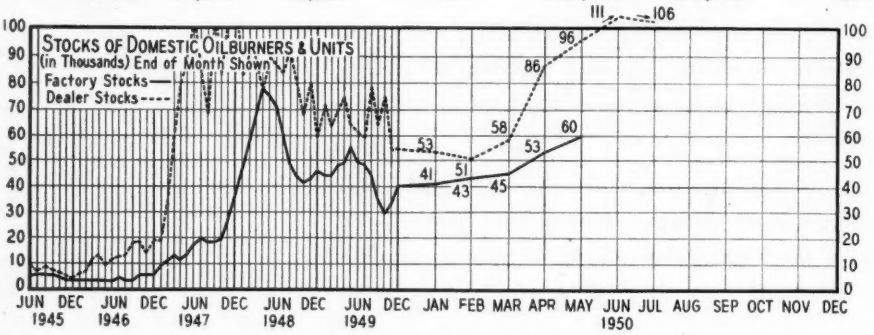

FACTORY SHIPMENTS, in Thousands of
Domestic Oilburners & Units
Domestic Stokers
Domestic Gas Burners
DEC JUN DEC JUN DEC JUN DEC JUN DEC JUN DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
1945 1946 1947 1948 1949 1950

Shipments of Oilburners and Units

(Including Exports)

Adjusted to include manufacturers other than the 152 reporting to Census Bureau, FUELOIL & OIL HEAT'S estimates of shipments are:

	JUNE			SIX MONTHS		
	1950	1949	Percent Change	1950	1949	Percent Change
Conversion	58,573	34,272	+ 70.9	233,270	136,471	+ 70.9
Boiler units	8,906	5,591	+ 59.3	32,048	16,753	+ 91.3
Furnace units	14,755	7,546	+ 95.5	54,391	28,919	+ 88.0
All Domestic	82,234	47,409	+ 73.4	319,709	182,143	+ 75.5
Commercial	2,566	1,919	+ 33.7	13,142	10,659	+ 23.3
Total	84,800	49,328	+ 71.9	332,851	192,802	+ 72.6


STOCKS OF DOMESTIC OILBURNERS & UNITS
(in Thousands) End of Month Shown
Factory Stocks
Dealer Stocks
JUN DEC JUN DEC JUN DEC JUN DEC JUN DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
1945 1946 1947 1948 1949 1950

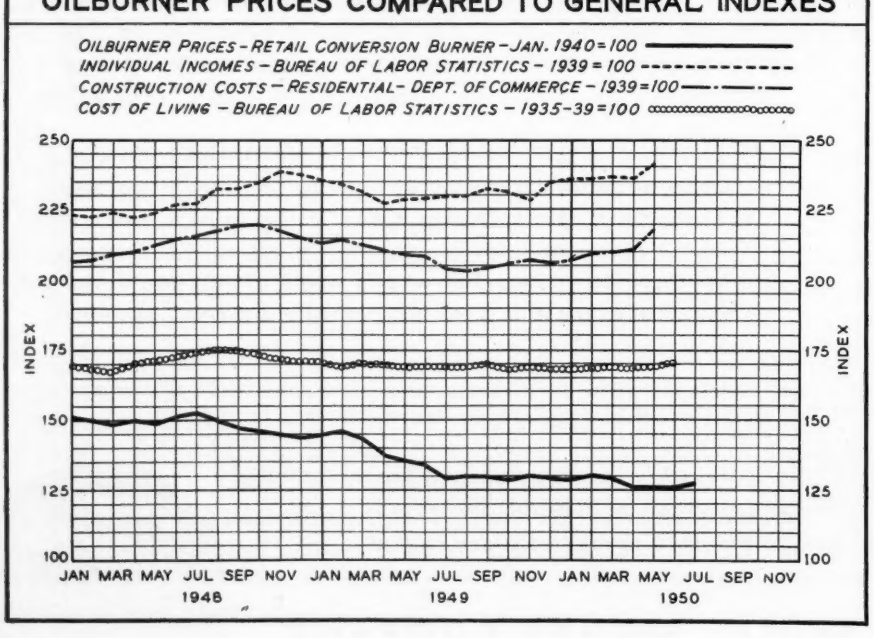
July Minimum Retail Prices: Key Dealers

	CONVERSION BURNERS	BOILER-BURNERS	FURNACE-BURNERS
July Aver.	$304	$642	$571
June Aver.	301	639	567

Price Index: Conversion Burners: January 1940 is 100%

	WHOLESALE				RETAIL			
July	125.0	Six months ago	127.6	July	127.2	Six months ago	127.9
June	124.4	Year ago	129.2	June	125.3	Year ago	129.6

OILBURNER PRICES COMPARED TO GENERAL INDEXES


OILBURNER PRICES - RETAIL CONVERSION BURNER - JAN. 1940 = 100
INDIVIDUAL INCOMES - BUREAU OF LABOR STATISTICS - 1939 = 100
CONSTRUCTION COSTS - RESIDENTIAL - DEPT. OF COMMERCE - 1939 = 100
COST OF LIVING - BUREAU OF LABOR STATISTICS - 1935-39 = 100
INDEX
JAN MAR MAY JUL SEP NOV JAN MAR MAY JUL SEP NOV JAN MAR MAY JUL SEP NOV
1948 1949 1950

Oilheating Trends

INSTALLATIONS OF domestic oilburners and units during July are estimated at 82,726, a rise of 68% over the estimated 49,203 installed last year.

Totals for seven months of the year are estimated at 354,504 compared with 245,653 in the same period of 1949 or a gain of 44%.

One major oil company economist has brought up the point that after the 1949 figures by months had all been tabulated at the end of the year, we issued a revision for the total year in the March 1950 issue. This revision was about 7% upward over the original 1949 total. He points out that we are now making comparisons with last year's monthly figure without giving effect to this revision. This has been done primarily because most companies tabulate the individual monthly figures and want their comparisons on that basis.

After the end of the year there is always a final revision up or down by a few percent although it is never known to which months the revision applies. Taking all this into account it would be reasonable for an economist to say that the true gain this year is more like 37% or 38%. However, we shall continue to make the comparisons with the published monthly figures of last year, the same as we have been doing.

July installations were divided: New homes 20,645; Replacements of old oilburners 5,899; Conversions from other fuels 56,182. For the seven months the division is: New Homes 93,176; Replacements of old oilburners 44,956; Conversions from other fuels 216,272.

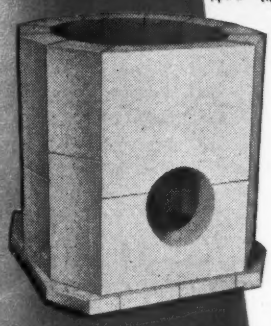
BURNER STOCKS: Stocks of domestic oilburners and units in dealer hands on August 1 are estimated 105,716, compared with 111,147 on July 1. This is a small drop considering the very high level of July installations and indicates that dealers were still getting burners about as fast as they could. Factory stocks on May 31, the latest available data, were 59,551, the highest point since July, 1948.

TANK STOCKS: Dealer stocks of tanks on August 1 were approximately 76,337, a serious drop from the previous month when they had been estimated at

A. P. GREEN

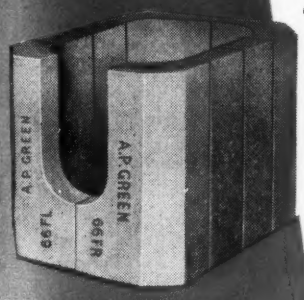
OFFERS YOU A PROVEN, EFFICIENT COMBUSTION CHAMBER For Every OIL BURNER REQUIREMENT...

EVERY JOB Can Be Yours...



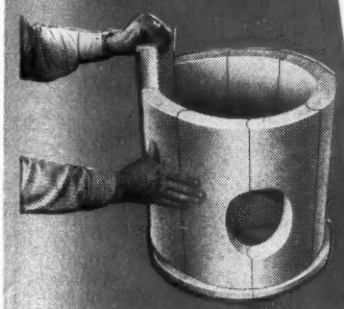
STANDARD Insulating Firebrick Combustion Chamber

Requires minimum installation time. The front tile is in two pieces with the burner opening already cut. Comes to you packed in a special cardboard container that assures no breakage in shipment. Everything you need for the job is in the carton, including a 5-lb. can of 'SAIRSET high temperature mortar. Standard sizes to meet your particular oil burner capacity requirements.



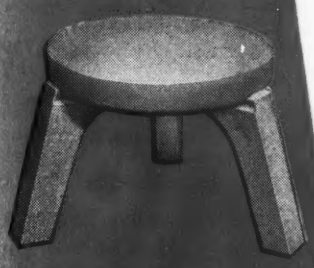
STREAMLINED Combustion Chamber

Conforms to the natural shape of the flame and eliminates "dead corners." Provides more quiet operation. The ease of installation makes the installed cost of a STREAMLINED Chamber no more than that of an ordinary type of chamber. Individually packaged in a specially designed carton — 5-lb. can of 'SAIRSET is included.



PERFECTO Combustion Chamber

A practical, economical solution to many oil conversion problems. Installation is simple. For both round and elongated chambers, four basic tile shapes are used to form chamber sizes to fit nearly every type of domestic furnace or boiler.



Oil Burner Baffle Brick

The baffle is installed in such a manner that it rests on the combustion chamber and directs furnace gases to all heating surfaces. Results in more economical and efficient performance by reducing the waste heat up the stack. Packaged in individual cartons.

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95,567. There is not much question but that the industry faces some serious tank supply difficulties since August through October is normally the peak season, and stocks should be building up during July, not dropping.

The August 1 stocks by tank sizes were divided: 220-275 gallon 63,533; the 550-675 gallon sizes 8,579; the 1,000 and larger sizes 4,225.

There is a possibility that sharp price increase may bring more manufacturers into the tank field as it did at the time of our last shortage in 1947. Tank prices this year went up 38% in the two month period June 1 to August 1. On June 1 the national average for a 275 gallon tank was $26 and on August 1 it was $36. By regions the comparisons were: New England $24 and $34; Mid-Atlantic states $27 and $36; Midwest $24 and $36; Pacific Northwest $27 and $36. There were individual instances reported of small dealers paying as much as $60 for this size tank.

Ralph Becker of Oil Heat Institute, in an early August study of 41 tank manufacturers, discovered that their manufacturing capacities are fully sold for the balance of 1950 with the exception of about 19,000 tanks. In other words, that is all that this group still has to sell. However, some did say that they would be glad to quote prices on any quantities, which indicates that they will build more if prices are attractive.

OTHER MATERIAL SHORTAGES: Among all reporting dealers this month 42% say that they have been unable to complete one or more installations due to shortages of materials other than tanks. The largest group or 20% of all dealers are up against it for iron or steel pipe and fittings, particularly the larger pipe sizes. Another 9% is being held back because those dealers can't get enough copper tube and fittings. Then 3% are hamstrung by shortage of electric installation materials particularly BX cable. The other shortages, with less than 3% of dealers mentioning them, cover the following items: galvanized sheets, furnaces, convectors, draft regulators, jackets for boiler and furnace units, controls, boilers, ducts, registers, smoke pipe.

DEALER INVENTORIES: Among all reporting dealers 60% had inventories on August 1 above those of a year ago; 5% had less stock on hand and 30% had about the same. This covers all types of materials and not simply oilburners. The composite increase, taking into account the ups, downs, and no changes, is 41% in dollar value. This is a phenomenal increase and indicates a very optimistic industry. Asked if their forward buying during July was substantially stronger than normal, anticipating possible shortages later, 56% of the reporting dealers said that they placed orders on this basis. In other words, more than half of dealers ordered materials beyond any visible need in the belief

(Continued on page 163)

Oilburner* and Building Permits

OILBURNERS					DWELLINGS			
July		7 MONTHS			July		7 MONTHS	
1950	1949	1950	1949		1950	1949	1950	1949
139	53	491	261	Albany, N. Y.	..	..	..	..
599	429	2884	2791	Baltimore, Md.	363	159	3536	1282
..	..	..	..	Binghamton, N. Y.	17	10	85	63
..	..	..	..	Bloomfield, N. J.	49	8	121	38
..	306	..	2319	Boston, Mass.	31	30	196	208
82	66	517	388	Bridgeport, Conn.	..	..	..	..
..	..	..	..	Buffalo, N. Y.	..	52	..	209
2	..	12	..	Columbus, O.	..	..	..	..
..	..	..	..	Des Moines, Ia.	215	147	1077	665
..	655	..	4716	Detroit, Mich.	983	1169	8907	6259
60	38	351	257	Elizabeth, N. J.	5	4	39	23
54	33	282	148	Freeport, N. Y.	..	..	..	..
..	..	..	..	Greenwich, Conn.	48	22	236	107
..	..	..	..	Hackensack, N. J.	..	4	..	30
205	12	993	525	Hartford, Conn.	..	..	..	..
..	..	..	..	Hudson County, N. J.	..	..	..	..
78	17	343	144	Irvington, N. J.	8	0	37	15
..	..	..	..	Lynn, Mass.	21	29	111	107
12	6	399	169	Meriden, Conn.	..	..	..	..
307	303	1629	1698	Milwaukee, Wisc.	431	216	2176	1109
63	67	428	415	Minneapolis, Minn.	264	131	1331	820
51	22	185	115	Montclair, N. J.	..	..	..	..
..	..	..	..	Morristown, N. J.	4	..	23	..
52	28	278	197	Mt. Vernon, N. Y.	..	..	..	..
..	172	..	756	Newark, N. J.	..	..	..	..
101	83	631	544	New Bedford, Mass.	..	..	..	..
72	42	297	244	New Haven, Conn.	..	..	..	..
..	..	..	..	New Orleans, La.	..	..	..	..
24	24	176	135	New Rochelle, N. Y.	13	1	116	31
..	2524	..	12783	New York City (total)	..	..	..	..
..	2016	..	9895	Brooklyn-Queens	..	..	..	..
658	508	3759	2888	Manhattan, Bronx, Rchd	..	..	..	..
243	108	717	732	Norfolk, Va.	83	34	793	414
..	..	..	..	Oakland, Calif.	..	..	..	..
132	62	424	458	Omaha, Neb.	185	49	1004	319
43	24	150	88	Orange, N. J.	1	0	13	1
32	28	215	163	Passaic, N. J.	..	..	..	..
93	67	590	367	Paterson, N. J.	29	10	143	60
1588	989	6106	4084	Philadelphia, Pa.	..	..	..	..
..	..	..	..	Plainfield, N. J.	75	27	161	63
49	41	274	168	Portland, Me.	30	16	121	79
849	636	2988	3578	Portland, Ore.	338	191	1573	1187
17	14	91	84	Poughkeepsie, N. Y.	..	..	..	..
..	64	..	315	Providence, R. I.	..	18	..	93
..	..	..	..	Reading, Pa.	4	7	56	28
..	95	..	460	Richmond, Va.	90	75	501	466
99	..	733	..	Roanoke, Va.	..	..	..	..
389	174	1800	1118	Rochester, N. Y.	..	..	..	..
..	20	..	123	Rockville Center, N. Y.	..	11	..	64
26	20	199	141	Salem, Mass.	7	7	60	61
13	18	227	540	St. Louis, Mo.	117	43	671	277
142	163	726	877	St. Paul, Minn.	211	46	1071	371
45	40	417	300	Schenectady, N. Y.	..	..	..	..
..	..	..	..	Seattle, Wash.	234	144	1674	923
..	..	..	..	Springfield, Mass.	100	37	486	274
74	45	586	248	Stamford, Conn.	..	..	..	..
10	54	89	291	Syracuse, N. Y.	60	37	418	209
..	..	..	..	Trenton, N. J.	4	4	47	57
..	..	..	..	Utica, N. Y.	34	13	107	45
56	141	796	566	Washington, D. C.	..	..	..	..
..	..	..	..	West Orange, N. J.	60	19	248	77
45	20	185	102	White Plains, N. Y.	30	12	100	57
89	105	470	492	Wilmington, Del.	14	7	175	65
244	121	1111	740	Worcester, Mass.	..	..	..	..
..	70	..	263	Yonkers, N. Y.	..	..	..	..
6736	4601	31804	26056	*Totals*	4145	2704	27390	15760
+46.4		+22.0		*Percent Change*	+53.2		+73.8	

*Permits are not total sales in each market since none are reported from suburban areas, which normally account for 20% to 60% of total sales in each market; nor are they an accurate index where enforcement is lax. Rightly used, however, they are a useful working index.

The 145-horsepower Ford Model F-8 Tractor shown has a G.T.W. rating of 39,000 lbs.

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fueloil & oil heat

Government Influences on Fuels

by
Milburn Petty

WASHINGTON—Interior Department is slated to get priorities, allocations and inventory controls over oil, gas and coal under the new defense production bill.

Interior plans a new fuels-energy unit to handle these controls, taking over some of the Oil and Gas Division's functions. Heading the new set-up will be Ralph K. Davies (Ex-PAW), if Secretary Chapman can persuade him to take the job.

A charter for a new Petroleum Administration for War has been drafted for promulgation in case the war situation worsens. At present, Chapman does not think it necessary to reactivate the Administration.

If shortages should develop in oil, gas or coal, Interior would have the power to allocate supplies down to the retail level. Detailed controls could be imposed on distribution, if voluntary allocations proved ineffective. Interior would be the claimant agency for materials needed by these industries.

For the time being, President Truman intends to retain, undelegated, the bill's price control and rationing powers. (Apparently, Truman still hopes to avoid applying these more stringent controls until after elections.)

Plan New Refineries, Pipelines

With refinery runs above 6,000,000 barrels and nearing the ceiling of effective operating capacity, there is much talk of building new refineries with government loans and five-year amortization provided in new legislation.

This means more pipelines to bring them crude from untapped areas. A new 150,000 B/D line is being completed from Longview, Texas, to Lima, Ohio, by Sun and Ohio Standard. Another line from Wyoming to Wood River, Ill., is planned by five major companies. The proposed line from West Texas to California is getting much support from the military planners.

U. S. Stockpiling of Coal Urged

Coal-state congressmen are pressing for action on bills for government purchase and stockpiling of anthracite and bituminous coal.

A three-man board would be set up in Interior to determine how much the government should buy—and at what price—from each operator. Coal could be sold by the government in times of shortage at not less than the going market price.

This bill indicates that some operators, at least, are sensitive to the fact that many coal markets are being lost because of interruptible supply rather than oil or gas competition.

Hearings have been set, with Secretary Chapman invited to testify.

Fuels Study May Crop Up Again

Chapman's philosophy on coal was evident during his testimony backing the Myers Resolution for a study of coal, oil and gas by the Senate Interior Committee to develop a national policy on all fuels.

"We must not overlook any opportunity to develop and protect the coal industry which has 90% of our energy reserves," Chapman declared. Each fuel should be put to its "most valuable" use, he said.

Senator Thomas of Oklahoma blocked the Myers Resolution—but it may come up again. Also, the Truman Administration may make a study on its own.

The petroleum industry fears that such a study might lead to recommendations for "end use" controls on oil and gas as well as other steps to promote the use of coal. Particularly, since the committee report said the Myers Resolution "will result in many needed legislative recommendations."

Coal Opposes New Gas Pipelines

National Coal Association hints that it will oppose allocation of steel for new gas pipelines, pointing out that about 4½ million tons of steel would be needed for projects now on file with the Federal Power Commission. Seven coal cars could be built with the steel required for one mile of pipeline.

"Natural gas is a luxury that may well wait until this country can enjoy it," says the NCA.

FPC is studying operations of gas producers, preparatory to issuing regulations for their control.

Meanwhile, FPC warns that it will take action against any field price for gas appearing to be "excessive."

Hearings in the FPC's proceedings against Phillips Petroleum Company have been postponed again, to October 9. This case, which likely will wind up in the courts, is to determine whether Phillips is subject to the FPC because of its sales of gas to interstate pipelines. It will test FPC's claimed powers over producers, including their prices.

Senate Oil Price Probe Is 'Dead'

Stymied by the objections of Senator Thomas, the proposed investigation of gasoline and fuel oil prices by the Senate Judiciary Committee seems dead now, according to Senator Ferguson of Michigan, its sponsor.

The question of price trends will be more or less moot anyway with the enactment of legislation authorizing the President to roll prices back to May-June levels. There may be a hullabaloo raised, if oil prices go up sharply, but the clamor will likely be for the imposition of price controls rather than for a Senate investigation.

Deferment Policy Explained

Oil bulk plants have been classified as an "essential" activity in the first announced policy on deferments from military service.

But the Defense Department says only those men "engaged in a critical occupation necessary to a highly essential activity" will be deferred.

The list of "critical occupations" includes chemists and other highly-trained men, not usually found working at bulk plants.

So, why put bulk plants on the "essential" list?

This was done to conserve the supply of skilled men until they are needed in war plants by preventing the military from grabbing such workers now employed in non-essential activities. For example, a chemist in a liquor distillery is in a non-essential activity. But he would be eligible for deferment if he switched to a bulk plant or other activity on the essential list.

Know Your Financial Ratios

WORKING CAPITAL YARDSTICKS HELP CHART THE MANAGEMENT COURSE

by

F. Raymond Kraemer*

DISCUSSION OF FINANCIAL ratios for fueloil and oilheating dealers, jobbers or distributors, necessitates at least some consideration of the historical climate in which small business generally has had to operate.

Credit, Financial and Business Management Consultation which we apply for successful operation of petroleum and oilheating distributors has resulted from comprehensive study of small and medium size businesses from 1920 up to this time. The seed for this new type of financial thinking for small business was sown in 1933 from the records of 1920 to 1929. During these years there were 379,800 small and medium businesses liquidated through bankruptcy. In 1929 just at the time when prosperity was at its highest point there were 53,400 bankruptcy liquidations. This prompted research into the reasons for small and medium size business suffering to this extent during a period of unusually good economic conditions.

This research and experience has proven that too many businessmen, including those in the petroleum and oilheating industry, are not sufficiently cognizant of the financial standards to which business operations must conform to enjoy reasonable profits over long periods of time.

All businessmen know that business is made up of capital, sales, accounts receivable, operating costs and other elements, covering which comprehensive and very valuable statistics are compiled, but many do not really know the standards to which these elements must conform in their particular business. Consequently, we find individuals in business doing a sales volume of say

F. Raymond Kraemer

ten times their invested capital when all findings of experienced and successful businesses have developed accepted standard for that type of enterprise of volume five times invested capital and conversely others whose sales are say three times when they should be five times invested capital. Likewise we find businesses with inventory which, when measured in relation to sales, shows a turnover of say 3 times a year, when the standard for that particular type of business is six times a year.

Progress of the fueloil and oilheating dealer will be in ratio to his recognition of the standards to which his own business should conform and his ability and courage to organize his business to meet these standards.

Unfortunately, the petroleum and oilheating distributing industry has never gotten together sufficient financial and operating statement data to determine definite standards toward which operating projections might be made. Efforts to develop this information through oil associations or credit associations have met with little or no success even though these financial standards are the ultimate goal of all petroleum and heating equipment distributors.

Consequently, each individual financial executive whether at the integrated company level or at the distributor level must draw upon his own experiences and data available to him to arrive at conclusions with respect to the financial results which should accrue to petroleum and oilheating distributors.

If this article or others which I might prepare will stimulate interest toward an understanding of the petroleum jobber profit and financial requirements, the underlying purposes will have been served.

While it will be necessary to get into some of the technical aspects of financial analysis, I recognize the importance of keeping this at a minimum and to cover a limited phase of the subject in each discussion. It is suggested that each article on this subject be retained for future reference and for a full appreciation of the data in total.

Standard Financial Ratios

I believe it is most practicable at this point to record the 15 financial ratios accepted by analysts as standards in making financial projections, all of which apply to the petroleum and oilheating distributing industry, as well as to business in general. These are as follows:

1. Ratio Current Assets to Current Debts.
2. Percentage Gross Operating Profit on Net Sales.
3. Percentage Net Profit on Net Sales.
4. Percentage Net Profit on Tangible Net Worth.
5. Percentage Net Profit on Net Working Capital.

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*Financial Consultant Mineola, N. Y. Mr. Kraemer in recent years has been retained by some of the larger fueloil and oilheating firms in the New York area, so is well qualified to apply his talents to writing directly to our industry.

He is a member of the National Association of Credit Men, New York Credit & Financial Management Association, a charter member of the American Petroleum Credit Association, secretary and treasurer of the Eastern Petroleum Credit Managers and a past president of the New York Petroleum Group of Credit Managers.

This article is the first of several on oilheating financial management. The second will appear in an early issue.

6. Ratio Net Sales to Tangible Net Worth.

7. Ratio Net Sales to Net Working Capital.

8. Average Collection Period in Days.

9. Ratio Net Sales to Inventory.

10. Percentage Fixed Assets to Tangible Net Worth.

11. Percentage Current Debt to Tangible Net Worth.

12. Percentage Total Debt to Tangible Net Worth.

13. Percentage Inventory to Net Working Capital.

14. Percentage Current Debts to Inventory.

15. Percentage Funded Debts to Net Working Capital.

For our purposes we will discuss at this time; the ratio of Current Assets to Current Debts.

Current Assets and Debts

A businessman usually knows what current assets, as well as current debts or liabilities are. If not, his accountant can very easily explain this to him. There are various interpretations of what constitutes current assets or current liabilities, but, broadly, a current asset is cash or any income item which might be converted into cash within a year and current debts are items which must be paid within a year. The difference between current assets and current debts represents a company's net working capital. In other words, it is an indication of the liquidity of your business and portrays to the financial analyst your ability to meet everyday financial requirements, either with difficulty or quite easily, depending upon the ratio existing in your business.

Of course, the ratio of current assets to current debts reflecting the net working capital position of petroleum and oilheating distributors varies in relation to the over-all operation of a particular business. However, experience has given us rather definite indications from which I believe the distributor can recognize standards to which this phase of his business must conform.

For our purposes when we talk of the financial position of a company or companies we are thinking in terms of the condition existing as of the end of the calendar year. I realize for petroleum and oilheating dealers it might be considered more advantageous to look at the figures at the end of the heating season, say May 30th, but again experience has proven that while it is quite logical to prepare financial data in conformity with the heating season, such records as I have observed over the years are for the most part prepared by the year.

With this in mind let us look at the practical standards of current assets to current debts which should exist as of December 31st of any year. The distributor we might first consider is one who handles fueloil and oilheating equipment, as well as some gasoline, which I believe would make up the majority of FUELOIL & OIL HEAT readers.

Should this distributor have his complete operation combined in his financial picture and should his sales of oilheating equipment approximate the 43% of total sales indicated in the FUELOIL & OIL HEAT statistics for 1949, the ratio of current assets to current debts for this distributor should be as close up to 2.5 to 1 as possible. The extent to which this distributor's liquid position is most satisfactory would be evidenced by the degree to which the 2.5 to 1 ratio is exceeded. The possibilities of this distributor experiencing day to day financial problems would be measured by the degree to which the ratio would be below the 2.5 to 1 standard.

Ratios for Oilheating Distributor

Now let us assume that we are looking for a standard in this ratio for a distributor of oilheating equipment alone, one who does not handle fueloil, or gasoline. Experience indicates that this distributor should have a ratio of current assets to current debts of 4 to 1. Again the degree to which this distributor improves his working capital position beyond the 4 to 1 ratio indicates the freedom of financial activity which he might enjoy and the extent to which the position is below the ratio of 4 to 1, the number of day to day financial problems which will confront him in the operation of his business.

Now we have the other distributor who handles fueloil and other petroleum products without heating equipment. This distributor can maintain a reasonably satisfactory net working capital position if his ratio of current assets to current debts is 1.5 to 1. Should he be able to bring this ratio above the 1.5 to 1 position, his financial problems will be minimized and conversely will increase to the extent to which he permits this ratio to go below this figure.

As pointed out heretofore, the purpose of this article is to stimulate thinking about the important financial standards to which your business must conform as a petroleum and/or oilheating distributor. At the present time we must necessarily deal in variations of ratios. Some day with enough accumulated data we can be more specific.

As we pursue this subject further in additional articles, I shall point up such important financial standards as Gross Operating Profit on Net Sales and the Percentage of Net Profit on Net Sales which should be enjoyed by distributors for reasonably successful operations.

St. Paul Oil Users Increase 3.7%

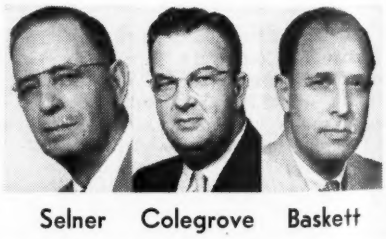
THE 1950 CONSUMER ANALYSIS of the St. Paul Market, released by the *St. Paul Dispatch-Pioneer Press,* indicates an increase in the use of oil and gas for home heating and a decrease for coal or coke. The table indicates the percent for each type of fuel reported. The Family population figure used in the study for projection purposes for 1950 is 120,000 families; for 1949, 105,126 families.

How Homes Are Heated

	PERCENT USING EACH TYPE			
	1950	*1949*	*1948*	*1947*
Coal or Coke	44.0%	51.9%	55.6%	59.6%
Oil	51.7	48.0	44.3	39.6
Gas	2.8	*	*	*

*Less than 1%.

Wilson Selner, associated with Allied Oil Co., Cleveland, for 22 years has been named a vice president of the company. *Frank C. Colegrove* also has been named a vice president. He has been succeeded as assistant to the president by *W. D. Baskett, Jr.,* who has been manager of transportation.



Selner Colegrove Baskett

Design Slants on Oil-Fired Units

FURNACE AND BOILER DESIGN DEPENDS ON BALANCE, NOT IMPRACTICAL IDEAS

by
J. W. Schulz

THE DESIGN of a new oil-furnace or oil-boiler is an excellent project for the unskilled inventor. He can get tremendous self-satisfaction from the thing if, as many others have done, he starts out believing there is no sound, modern logic behind the designs of the oil-furnaces and oil-boilers being sold most widely today.

Following the standard pattern, such an inventor ignores the fact that hundreds of the experts responsible for the designs of the furnaces and boilers now being built have worked for years to gain the knowledge and experience they now possess. He ignores the design principles and limitations that guide old-timers at furnace and boiler design, glorying in the advantages he thus gains. Often the advantages gained in this way show up spectacularly in laboratory and field tests of a few hand-made units.

Cheaper by the Dozen

Out-of-this-world designs for oil-fired boilers and furnaces, produced by amateurs and inventors new at such design work, appear by the dozens every year. Along with them come out-of-this-world performance claims such as these:

"Uses half the fueloil used by the most modern units of orthodox designs!"

"Triumphs in having one-third the combustion space of any unit of similar capacity!"

"A unit the size of a coffee table can heat a six-room house!"

"Has several combustion chambers, therefore gives three-time, ultra-clean combustion!"

"You burn your hand on the smokepipes of all other oil-fired boilers and furnaces, but this unit's smokepipe won't burn you!"

"Is pressurized! Operates under high gas pressure throughout, whereas ordinary boilers and furnaces need draft and operate under slight vacuums!"

"Features five times the flue-gas velocity of ordinary oil units!"

"Needs no chimney draft, proved by running it with the products of combustion pouring out into a room!"

Some of these and similar performance claims for boiler and furnace units of weird design are based on germs of truth. For example, it is true that a unit can be developed around an extraordinarily small combustion space, perhaps one-third that used usually, and that this can lead to the advantage of greatly increased temperatures for the flame and the direct heating surfaces. It is true that a boiler or furnace one-third the usual size can heat a six-room house, and that there are advantages in compactness.

High flue gas velocity can be used to increase wonderfully the effectiveness of a certain amount of indirect heating surface, and can lead to low stack temperatures and reduced fuel consumption. It certainly is true you'll burn your hand on most smokepipes connected to oil-fired units, and that designing towards much cooler smokepipes is possible and will save fuel. Of course many oil-furnaces and oil-boilers can be operated without smokepipes and chimneys in an effort to prove they need no chimney draft; eliminating the need for chimney draft is indeed desirable.

Couple a germ of technical truth with the most effective high-pressure salesmanship, and you can wind up with a predicament for the equipment dealer who must talk about oil-fired boiler and furnace technicalities because he sells and installs furnaces and boilers, but who really knows little about these technicalities.

Few Get Into Production

Not many of the amateurish, weird-design boilers and furnaces which are "invented" actually go into production, which is good, but a few are manufactured and sold to dealers and home owners. Some dealers are not well informed on the design ideas which are the basis for the well-known oil furnaces and boilers of truly excellent characteristics. Such a dealer is likely to be a pushover when into his office walks a high-pressure salesman offering an oil-fired furnace or boiler of weird design.

The danger to the dealer is increased greatly by two factors.

Innovations Get Attention

First, the unit of weird design is likely to appear distinctly superior in some striking way, compared to the furnaces and boilers which the dealer has been handling and is familiar with. For example, the smokepipe may seem to run stone-cold, and the salesman for the unit may say it therefore uses half the oil of other boilers and furnaces; or the unit may be decidedly and fetchingly smaller than typical units of similar capacity. The efficiency of a unit of poor design can, in truth, be higher than the efficiency of a same-price, similar capacity unit of good design; things other than the efficiency it achieves can comprise the shortcomings of a unit.

Second, there's danger for such a dealer in his natural inclination to be modern-minded, on the alert for and appreciative of valuable, startlingly new design features in oil-fired boilers and furnaces. On a realistic basis, one boiler out of a hundred of the weird or unusual designs that have gone into production may possess special merit. Not all boilers and furnaces of different than orthodox principle and design are inferior to the oil-fired units being installed generally today. There are special design oil-boilers and oil-furnaces of great merit. More like these may appear, and the wise dealer wants to keep his eyes open for them. The danger lies in the dealer's being too eager to be appreciative of a radically different design bent, compared to old styles, and in therefore starting to sell and install oddly built oil-furnaces and oil-boilers which have shortcomings and headaches that bloom only after the units have been in use some time.

Avoiding the error of hooking up with a manufacturer of oil-fired units of poor design depends, then, on an equipment dealer's having some knowledge of those boiler and furnace design

slants which for excellent reasons generally are considered good.

Knowledge of such design slants arms a dealer against the sales arguments of competitors who sell units of weird, unworthy design.

Technical knowledge of furnace and boiler characteristics permits a dealer to help home owners who unfortunately bought units of unsound design and need renovation and service work to keep the things going.

Finally, a dealer's appreciation of the best oil-boilers and oil-furnaces being built today depends on his having some idea of how boiler and furnace designers gain suitable efficiencies and avoid trouble. A dealer handling an excellent line of boilers or furnaces for oil-firing must have full appreciation for what he offers, in order to be able to advance to sales prospects the specific, definite ideas that build similar appreciation in them.

The accompanying schematic drawing that includes three circles covers both furnaces and boilers.

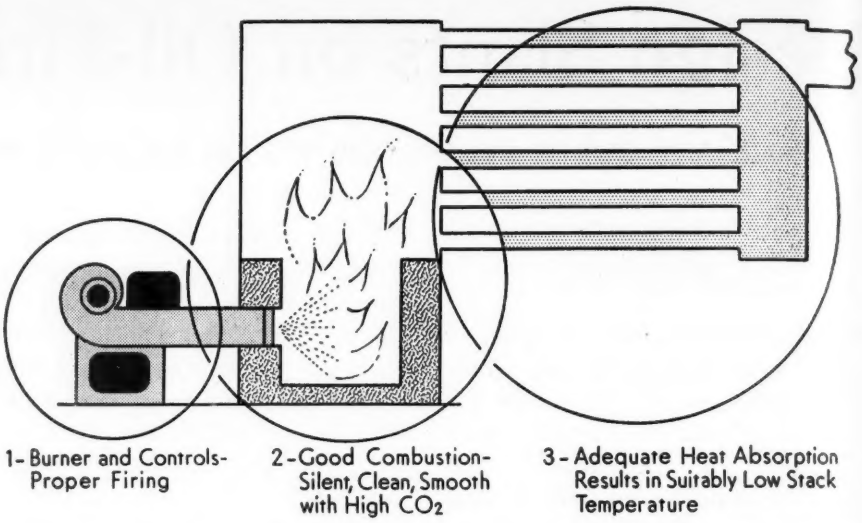
First, the oilburner and controls provide for proper firing. The burner starts and stops safely and when it should, prepares the oil for combustion and delivers it properly into the combustion chamber, and at the same time delivers the proper amounts of air in the proper manner by means of forced draft. Here, the burner can be considered the popular gun type, of either high pressure or low pressure atomization.

Concentrating here on furnace and boiler characteristics, we'll assume the oilburner itself performs splendidly in every way.

Overlapping Functions

Second, comes good combustion within the furnace or boiler. There's an overlap of circles 1 and 2, for though proper firing is linked mainly to the oilburner, it depends also on proper combustion space in the boiler or furnace. Circles 2 and 3 overlap; heat absorption is completed in circle 3, but the direct heating surfaces above the combustion chamber of circle 2 are highly important with respect to heat absorption.

That good balance in design is a high point with skillful, experienced designers of oil-furnaces and oil-boilers becomes apparent at once in considering circle 2, good combustion. Whereas unfortunately many pieces of literature describing modern units for oil-firing stress adequate combustion space, the fact is that this term is such great understatement as to be misleading. Modern units of orthodox design commonly have several times as much combustion space as is needed for excellent burning. Flame noise and starting and stopping pulsation, not combustion quality, often place the limitations on minimum combustion space for given gph rates.


1 - Burner and Controls - Proper Firing
2 - Good Combustion - Silent, Clean, Smooth with High CO_2
3 - Adequate Heat Absorption Results in Suitably Low Stack Temperature

Although *the imprudent inventor easily produces spectacular results from a boiler the size of a coffee table, the catch is that his creation lacks balance. Pint size combustion chambers, 250° stack temperatures, and hard squeeze flue passages are the "inventions" of many men new at designing oil-furnaces and oil-boilers. The experts who work year-round at designing the best oil-fired units made today know enough to avoid these pitfalls. Sound, balanced design is needed in oil-furnaces and oil-boilers. Trickery in design is best avoided.*

Cut the combustion space of one modern furnace in half for the sake of experiment, and you obtain excellent combustion, perhaps even better, higher-temperature combustion than you had with the original design. But you will have too many complaints about flame noise and starting and stopping pulsation after you have installed hundreds of furnaces of this design, and fired them with a few dozen different gun type burners of representative design.

Increase greatly the combustion space of this furnace model, and you wind up with a cool flame and cool direct heating surfaces that collect a layer of soot which becomes objectionably thick on typical installations. Combustion space here is being considered as the entire volume enclosed by the firebox and the direct heating surfaces shown in the diagram. This is the space occupied by the products of combustion before they enter the passages that form the indirect heating surfaces.

The firebox itself, in Diag. 2, must also be of size balanced to the gph rate of the boiler or furnace. Briefly, an oversize firebox causes cool burning, may invite incomplete combustion; an undersize firebox invites impingement of atomized oil, thus may cause incomplete combustion, and aside from that causes certain firebox materials to overheat or become carbon coated and deteriorate.

The boiler or furnace unit of orthodox design has, then, balance in both the size of its firebox, and the size of its combustion space. Make either of these considerably larger or smaller than is good practice, and you throw the unit out of balance. The resultant poor balance leads to certain troubles, well known to experienced designers of oil-boilers and oil-furnaces.

Circle 3 has in it two elements of balance. First, the absorption ability of the indirect heating surfaces must be correct, not insufficient and not excessive. Insufficient absorption ability gives high stack temperature and waste of fueloil. Excessive heat absorption gives insufficient stack temperature and resultant difficulties on actual installations with which many unwise inventors, doting only on squeezing from the oil the last ¼% of available heat, have never heard of. Hardheaded equipment dealers and service men know as well as boiler and furnace designers that absurdly low stack temperatures lead to trouble and service calls related to poor draft, condensation in chimneys and smokepipes, flame noise, and starting and stopping

pulsation. The fact that a 300° stack temperature furnace, for example, works out well on three field test jobs does not prove that the installation of 100 such furnaces will not cause headaches on ten jobs, together with service expenses high enough to make a dealer sorry he ever sold the units.

Economic Rule of Reason

Economics, to be discussed presently, come into the matter of the heat absorption ability of a furnace or boiler. There's a limit to the degree the stack temperature should be reduced according to economics. Go beyond this limit, and the slight fuel savings produced by additional reduction in stack temperature is more than offset by the cost of the material that reduces the stack temperature.

Of practical importance, in general, units that give exceedingly low stack temperatures have a greater tendency to collect soot than units that give higher stack temperatures. Hard-firing a unit of a given size tends to keep its flues clean, while firing the same unit very lightly to produce a stack temperature below, say, 400°, may result in the need to clean the flues several times a year.

The second element of good balance in circle 3 is the draft-drop or pressure-difference through the flue passages. Following a design slant that makes for relatively high draft drop leads to great effectiveness for a given area of indirect heating surfaces, but produces a furnace or boiler that needs high smokepipe draft to keep the over-fire draft negative. Many designers aim for good reasons to have their units operate with the over-fire draft slightly negative; this results in air being drawn into any leaks around the combustion space, base, flame observation doors, etc., and wards off having to tell service men to smear on furnace cement to end complaints about soot and oil odors in the basements.

Exceedingly high draft drop makes for trouble. Often it relates to flame noise and starting and stopping pulsation, panting, and having to clean the flues often. It leads also to the troubles caused by plus over-fire pressure on many installations. Low draft drop, on the other hand, relates in general to comparative ineffectiveness of the indirect heating surfaces; to obtain a certain heat absorption with low draft-drop indirect heating surfaces may lead to the use of additional size and material, thus run up the costs of producing the unit. Experienced designers usually have been through the mill of draft-drop factors. They know the happy medium that gives balance to the boilers and furnaces they design.

Another matter must be solved in designing the flues or indirect heating surfaces that produce the suitable stack temperature. The passages through which the products of combustion travel can be small, for example like firetubes made of ¾" pipe, or large enough for a cat to go through, or anything in between. Even giving a certain draft-drop, small passages have certain advantages and large passages have other advantages. At the extremes, exceedingly small passages may be wonderfully effective but may be affected inordinately by a deposit of a layer of soot ⅛" thick; the passages large enough for a cat may seldom need flue cleaning and in this respect may be exceedingly practical, but for their area of indirect heating surface may be intolerably ineffective at reducing the temperature of the gases that flow through them. Again, balance is needed. Excellent balance in the design of an oil-furnace or oil-boiler escapes the troubles found in the unbalanced designs produced by nutty inventors.

	Stack Temp.	Stack Loss
Wasteful	900	35
	850	33½
	800	32
	750	30
	700	28
Passable	650	26½
	600	25
	550	23
Excellent	500	21
	450	19½
	400	18
	350	16
	300	14½

Based on 8% CO_2, *this table gives stack losses in percent of the gross heat content of domestic fueloil. Example: At 500° stack temperature and 8% CO_2, 21% of the total heat in the oil escapes through the smokepipe. For reasons given in the article, 650° stack temperature is considered passable, not the 600° considered passable in laboratory testing.*

Excessive draft-drop, low stack temperature, and the use of indirect heating surfaces having exceedingly small openings, can all gang up to produce a compact and highly efficient boiler or furnace that shows up well on a few test jobs and during laboratory tests. These design bents can gang up also to produce a unit which, encountering often, I've come to term as "soot-sensitive." A unit of this type tends to accumulate soot in its flues, its tendency being related to its low stack temperature and sometimes to the design of the small flue passages.

Choke Flue Passages

The slightest layer of soot reduces greatly the open area of the flue passages, of small size to begin with. The draft drop, high to start out, increases inordinately. The rate the burner delivers air into the firebox decreases because of increased over-fire draft. All this comes out as making more soot because you made some in the first place, and ultimate soot-plugging of the flues to the degree that the unit can no longer operate properly. There's no better example of a vicious circle than is found in a "soot-sensitive" boiler or furnace.

The accompanying table relating stack temperatures to stack losses is based on the CO_2 being 8%, just passable. It gives the stack loss in terms of the gross heating value of the domestic fueloil to which this table applies. Here, stack temperatures below 450° are not considered excellent, the reason being that aiming for lower stack temperatures on typical installations invites the troubles of insufficient stack temperature. It is not that every installation producing lower than 450° will give trouble; the point is that certain dealers who put in hundreds of units, all giving stack temperatures lower than 450°, have trouble on too many of their installations, even though most jobs work out very well.

The table relating stack temperatures to stack losses indicates 25% of the total heat in the oil goes up the stack at a stack temperature of 600°, whereas at 450° the stack loss is 19½%.

Attaining overall balance through considering the many factors already mentioned, many experienced designers of oil-boilers and oil-furnaces have decided on 600° as the happy-medium and relatively troublefree design stack temperature. In the table, 650° is indicated as passable, because a unit that shows 600° in the laboratory when being fired for rating tests, and which shows about 600° on the job when brand new, may be expected to show a somewhat higher stack temperature when field tested later in normal operation, after it has been in use a few months.

Oversize Economies

All this is no argument against a dealer's making a point of producing unusually low oil bills for his customers by installing calculatedly oversize oil-furnaces and oil-boilers, firing these perhaps 1/3 or 1/2 gph less than rating, and winding up with reasonable improvements in operation. Following this course may produce stack temperatures of 450° to 500°, lower draft-drop through the flues because of the under-firing, and an advantageous increase in the ratio of combustion space and flue passage area to gph rate that gives performance free from flame noise, panting, starting and stopping pulsation, etc.

In picking his oil boilers and furnaces oversize to reduce stack temperatures, the dealer learns quickly that, as design engineers point out, the equipment cost may rise unreasonably compared to the fuel saved yearly in dollars and cents by the reduction in stack temperature. Not all home owners are willing, for example, to spend $80 more for a furnace in order to save $12 worth of oil yearly. Incidentally, taking into account the heat given a house by an inside chimney brings down the fuel savings produced by a given reduction in stack temperature. As has been indicated before in FUELOIL & OIL HEAT, one expert takes inside chimneys into account by deducting 100° from the stack temperature reading of a two-story house, and 50° from the reading of a bungalow or one-story house.

	% CO_2	Stack Loss
Excellent	15	16½
	14	17
	13	17½
	12	18
	11	19
Good	10	20
	9	21¼
Passable	8	23
Wasteful	7	25
	6	28
	5	32
	4	38

This table *is based on 550° stack temperature. Example: At 10% CO_2 and 550° stack temperature, 20% of the total heat in the oil escapes through the smokepipe. Taking into account the heat given off by inside chimneys is good practice; a 650° stack temperature can be considered at 550° in a two-story house having an inside chimney.*

The accompanying table relating CO_2 readings to stack losses, also in terms of gross heating value of domestic fueloil, is based on 550° stack temperature. Notice that at low CO_2 an improvement of 1% CO_2 means much more than the same improvement at high CO_2. The service man needs balance when he selects the CO_2 reading he aims for.

Exceedingly high CO_2 saves little fuel compared to CO_2 which is but 1% or 2% lower, but often invites trouble of soot and smoke when a different type of oil is delivered or the chimney draft changes for one reason or another. Regarding CO_2, many designers of boilers and furnaces reach a balance in this way. They test at 10% CO_2, no higher even though during the laboratory testing perhaps 13% could be attained with clean burning, for their premise is that you can't expect to find typical installations set for higher than 10% CO_2.

It is true that many, many mechanically-inclined amateurs can, on settling down to it, design oil-fired furnaces and boilers which when demonstrated seem to put to shame the performance of the typical oil-furnaces and oil-boilers being sold widely today. By disregarding either production cost factors or the on-the-job trouble possibilities which have been discussed here, an inventor who has never worked at the problem before can produce a unit that gives 250° stack temperature. If the unit is only the size of a coffee table but can heat a six-room house, that's not surprising. The trick's been done many times before.

Informed equipment dealers don't fight the use of units of this type simply by hurling at them the word "impractical." Anyone can say that word quickly; it's weak because it is not sufficiently specific.

To say the unit lacks balance throughout puts it accurately. It lacks the balance that years and years of study and development work, plus field use on thousands and thousands of jobs, have bred into the better-class furnaces and boilers of the types being installed widely today. Good balance, not trickery, makes good oil-furnaces and oil-boilers.

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Steuart Opens Marine Oil Terminal at Piney Point, Md.

AUGUST 21 marked the opening of a 37,800,000 gallon capacity marine oil storage terminal at Piney Point, Md., 85 miles from Washington. L. P. Steuart & Bro., Inc., Washington, D. C., burner and fueloil dealers, operate the new terminal, which was opened officially with the docking of the tanker President Brand with a cargo of 4,410,000 gallons of fueloil. The new terminal adds to Steuart's existing 8,000,000 gallon storage and the facilities at Piney Point make it possible for ocean going tankers to unload there without making the longer trip into Baltimore.

The new plant is expected to result in lower transportation costs since the oil will be brought from Piney Point by barge to Washington, as needed. With the opening of the new facilities, Steuart becomes one of the few fueloil dealers in the area to have accommodations to permit direct sources of supply to oil fields and refineries.

Creative Selling Pays Off

IRON FIREMAN A CHICAGO LEADER USING METHODS THAT BUILT OUR INDUSTRY

by
Robert Gray

It was 8:30, hot Chicago morning time in mid-July. The 25 salesmen of Iron Fireman's retail branch sprawled comfortably about the conference room. Sales manager J. C. Veltman briefed them on fresh factory material, a report on yesterday's results and some new approaches to be tried in the day just beginning.

The session, just like the one held every morning with the full sales force attending, was to last only a few minutes, 10 or 15. There were questions; there were success stories. There were side bets on the current steeplechase handicap that was spread in color over the left wall, with the favorites and a sleeper or two well out front.

It was a solid looking lot. The men gave the impression of being established in work that they enjoyed, or at least work that they expected would support their families comfortably. They were selling on commission but were not floaters in the sense of the old-time specialty salesman, who had trouble deciding each season whether oilburners were hotter deals than refrigerators or building and loan shares.

The turnover in salesmen has been running no more than 10% a year since Iron Fireman adopted a scientific screening and training routine that kept square pegs out of round holes. Only a handful of manufacturers in our industry have given much attention to this most important phase of retail selling, but more of them will in future. Al Crawford, chairman of O.H.I.'s Public Relations Committee, has advocated in several directors' meetings that the Institute sponsor for the industry a program on personnel selection. The idea hasn't yet taken root.

The conference room that July morning had other adornments. There was a Confederate flag at half mast and a Union flag riding high. The city had been divided into two teams. North Side and South Side, the Yanks and the Rebels. The Yanks were on top for the month. The Rebel captain must wear a fatigue hat at all meetings until the Confederate flag once again tops the mast.

The handicap horse race carried a $300 purse for the first 150 sales of the month . . . $2 each sale. Then the men themselves were allowed to bet up to a dollar a sale on the entries, practically a pari-mutuel arrangement.

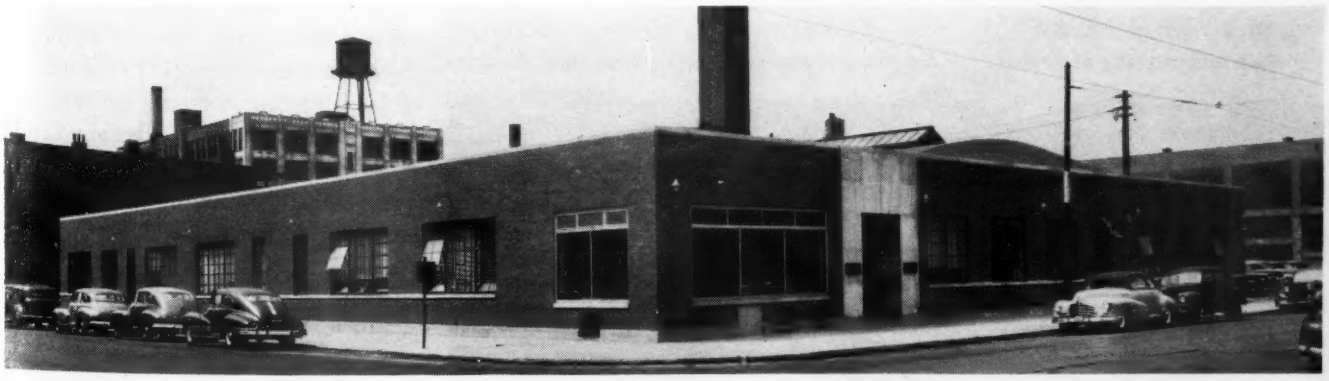
All of this team play, this horse play was to add another competitive stimulant to selling. They must not only outsell other dealers' equipment, they must in addition outsell their own shop.

Scientific selection of salesmen starts with their being given a booklet to read, "Four Vital Questions on the Subject of a Sales Career." The four questions developed on pages of the book are these: "Should I Consider Selling as a Career?" . . . "Is the Heating Industry a Good Business to Go Into?" . . . "Should I Consider Selling Iron Fireman Equipment?" . . . "What's In It For Me?"

If the man then wants to apply for a sales job, he is next interviewed for five minutes by Veltman. The first question is, "What's your opinion of canvassing for prospects?" That weeds out a lot of them, because if they show distaste for this work they won't fit.

If they pass this first general impression interview they are given a six page personal history inventory to study and fill out. This was developed by the Personnel Institute of Chicago. A representative of the Institute and Veltman each study the personal inventory and make red flag marks on points they question. Some men are sent to the Institute for aptitude tests. Asked what objectionable characteristics of a man they most commonly flag, Veltman explained that among other considerations these are undesirable: single men; men with working wives; men with no car or an

W. J. O'Neil, *branch manager, who came to Iron Fireman from Field Draft Control back in the late 20's, gets top credit for the success of the Chicago operation.*



Iron Fireman's *Chicago branch is the center for all retail activities in the metropolitan area. Located in the wholesale district just west of the Loop, it is one of the company's six retail branches. The others are in Brooklyn, Milwaukee, St. Louis, Cleveland and Portland, Ore.*

Installation, *engineering and service crews make a big contribution to the sales department's success, since more than half of new installations result from leads from users of the equipment.*

old jalopy; men who have held too many jobs; men under 25 or over 35 years of age. There are a lot of other personal considerations, but Veltman took pains to point out that no such tests are infallible and that a man might be hired in spite of a number of bad measurements, but not often.

If a man is hired for selling, he is given a drawing account of $300 a month against commissions. The company is convinced that a man with rubber on his tires and money in his pocket will have words in his mouth. Asked if that isn't a rather high drawing account, it was explained that if a man doesn't earn at least $5,000 a year he is not a good man for Iron Fireman. He would be tying up a valuable territory without suitable sales volume. Some of the men earn eight to ten thousand a year.

The 25 salesmen working out of the branch represent 15 on domestic and 10 on commercial work. A domestic man does not sell commercial burners and vice versa. Each man has an exclusive territory where he does most of his work. If he gets a good lead through personal connections somewhere else in the city he may go and sell it, but he must then give the regular man in that territory one-fifth of the commission.

Unless a man has definite sales appointments which are listed in the office he is required to spend all morning canvassing in his territory. In the afternoon he works on appointments or leads, and of course often does his closing in the evenings.

There are several channels for leads to occupy the man's afternoon. First the company has four full time telephone canvassers, at it all day long. They are almost sure to have one or more prospects for each man every day. Then each salesman works closely with oil companies in his part of town.

Iron Fireman does not sell fueloil. Veltman points out, "A half cent on oil won't keep our doors open; we're not oil men and besides there's a lot more money in equipment." The cooperating oil companies are steered to the new oil accounts that Iron Fireman men create. There is an office card file on this to make sure that this new oil business is distributed in exact ratio to the number of leads turned in by the oil men. No salesman is permitted under any condition to accept a commission or gratuity from any oil company.

Of course in the canvassing and telephone solicitation it is important to periodically talk to all users of the equipment to make sure they are satisfied and get leads from them. Just about half of total sales are made on suggestions from users.

Service management *and dispatching group have responsibility for 15,000 automatic heating users.*

Parts *and shipping department for domestic and commercial equipment, three fuels.*

354 burner sales *was the July record of the Chicago sales group shown. Of these, 221 were domestic burners, 133 were commercial. The smaller group at the top shows the five contest winners for the month with Jack Veltman, sales manager, fourth from left. Veltman, out of college in 1929, went to work for O'Neil and in each of the next 20 years was the branch's top sales producer. He was made sales manager in November 1949. In the 10 prior months of that year he sold over 300 commercial and industrial installations. O'Neil, branch manager, is sure that this performance established an all-time industry record.*

Iron Fireman men concentrate on conversion sales the year around . . . that is conversion from other fuels, although a complete unit may be sold. New homes are ignored. They get plenty of conversion sales in the winter months, as a lot of concentrated study is given to levelling out the peaks.

Conversion burner prices are $395 for the gun and $460 for the Vortex type which does not require a combustion chamber. Commission rates differ between items but average 11%. If there is a concession of any kind or someone figures wrong, the difference is shared equally with the salesman.

About two-thirds of all sales involve time payments, which the company prefers. The interest rate is 6% a year. All such contracts are written for three years but they can be paid off sooner with the buyer getting full credit for the interest saving.

From present indications the Chicago branch will sell at least 2,000 domestic oilburner installations in 1950, plus several hundred commercial jobs that will average $3500 to $4000 each.

In its development years, Iron Fireman was of course a stoker company. It came into oilheating at a considerably later date. The salesmen in the Chicago branch had practically stopped pushing domestic stokers, and in fact were finding their own early stoker users to be prime prospects for oilburner sales. Curiously, in July stoker sales began to pick up due to the Korean situation. The Chicago branch sold more stokers in that month than in the full year before. That improvement may last until the world situation is more settled.

The branch also sells gas heating equipment, but only about one job to each 20 oilburners. The men, after unhappy experiences, will no longer spend any time on a gas heating prospect until the family has been issued a definite permit by the gas utility.

Chicago has not been a leading oilheating market for quite a number of years. Coal is cheap and in some parts of the metropolitan area gas is cheap. Yet the city does have a dozen conspicuously successful oilburner marketers. Iron Fireman has joined this group.

A visitor spending a day in the Iron Fireman branch can't escape the feeling that he's witnessing a revival. The only real difference between what's happening there today and what happened at Buckey and Scott's or at Elliott Lewis' 20 years ago is in the higher present caliber of the salesmen. Commission selling in those days saw a wide turnover in the force from year to year, month to month.

As burner prices fell, and with them salesmen's earnings, most of the good men found greener pastures. Specialty selling on commission lost favor with many dealers in the oilburner industry. A prominent manufacturer explained a few days ago that when oilburners passed 10% saturation of the potential market they became a commodity, no longer subject to specialty selling.

Iron Fireman at Chicago is proving that "it ain't necessarily so." Stir up a mixture of the creative selling routines so successful years ago and blend in the modern idea of carefully screened and financially supported permanent sales manpower, and it works. That's the lesson of Iron Fireman, Chicago branch.

Compact Commission Reports Large Reserve Capacity

GOV. ROY J. TURNER OF OKLAHOMA, chairman of the Interstate Oil Compact Commission, revealed the amount of additional crude oil that the oil producing states could provide for the national emergency to the first general session of the group on August 5 at French Lick, Ind. His announcement was made at the same time the information in letter form was delivered to President Truman.

Gov. Turner stated that "the sovereign oil-producing States can furnish upon call 1,492,601 barrels of oil per day in addition to the present daily oil production of 5,400,000 barrels." This figure later was revised downward to 1,129,561 barrels.

Reporting the session in its August 7 issue, the *Journal of Commerce* said that pipe line purchasing firm representatives were skeptical that existing facilities could handle such additions without using the two "Big Inch" lines and Government assurance that the industry would receive sufficient steel.

Nozzles -- the Key to Combustion

THEIR ACTION AND FUNCTION IN HIGH PRESSURE ATOMIZING OILBURNERS

by

Eguene O. Olson*

THE PURPOSE of this discussion is not to produce some startling new facts about nozzle performance nor is it intended to be a scholarly treatise on the subject for the benefit of the archives of engineering. We are merely trying to present some facts here which will help engineers, dealers and servicemen to understand better the operation of the nozzles which they use, with particular reference to the type of nozzles used on domestic oilburners.

Nozzles are used for a wide variety of applications. In most of these applications the problem is to break up a body of liquid into very small particles. The purpose for separating this liquid into these small particles may be to expose the largest possible area of the liquid to air or it may be to get a maximum dispersion of the liquid over an area which it is desired to wet. In any case, a technique is required for pulling the liquid apart into the small particles or droplets. To do this it is necessary to overcome the surface tension of the liquid.

Surface tension is the tendency of the surface of a liquid to contract to the smallest possible area. The effect is similar to an elastic membrane or skin surrounding the body of liquid and pulling it into the shape which will have the least amount of surface area. That shape is spherical. Surface tension tends to resist any effort to pull the liquid apart or to change its shape. It is possible to calculate the amount of energy required to overcome surface tension and to break a droplet into smaller droplets. There are other factors, however, which interfere with the application of forces to get the job done and which complicate the calculations. These interfering factors will be discussed later.

Various nozzle designs can be used to accomplish the objective of breaking liquid up into very small droplets. A simple orifice is not generally thought of as an "atomizing" nozzle but given enough distance and the proper specification of liquid it can be made to do a pretty fair job of breaking up liquid into small droplets. It is not generally employed as an atomizing nozzle because its spray pattern is not desirable.

The "anvil" type nozzle is used in some applications. This is the type of nozzle similar to that used on some vegetable display stands in which the solid stream of liquid impinges upon a plate or the flat end of a rod, thus breaking the liquid into small droplets.

The pintle type of nozzle is most commonly employed on a garden hose. It has very limited application in the field of combustion.

A more common type of nozzle than either of the above is the so-called low pressure nozzle. This is one in which air or steam is used to supply the energy necessary for breaking up the liquid. The air atomizing nozzle is used in some domestic oilburners but we shall not concern ourselves here with a discussion of its performance.

By far the most popular type of nozzle used for breaking up oil into very fine droplets is the high pressure swirl chamber type nozzle used in more than 70% of the oilburners sold in the U.S.A. The rest of this discussion will be concerned only with that type of nozzle.

It must be remembered that energy is required to do the work of pulling the oil apart into small droplets and delivering them in the desired spray pattern. This energy is supplied to the nozzle in the form of pressure energy, the common setting on most burners being 100 pounds per square inch (psi). This type of nozzle requires that this pressure energy be converted into velocity energy or if you prefer, kinetic energy.

Figure 1 shows one means of accomplishing this. In this type of nozzle the oil flows through narrow slots and emerges at the far end of the slot at high velocity. By setting the slots off center and enclosing the space at the discharge end of the slot as in Figure 1, it is possible to create very high rotational velocity in this "swirl chamber." The rotation in the swirl chamber sets up a centrifugal force pushing against its outer wall, and that of the orifice or discharge tube from the center of the swirl chamber.

There are other factors which interfere with the delivery of the maximum amount of energy in the form of centrifugal force at the orifice. One of these is friction between the oil and the side walls of the swirl chamber and slots. Liquid tends to cling to a wet surface and energy is used to keep it moving. The other important factor is the internal friction of the oil itself, commonly referred to as viscosity. It can readily be seen that if energy is consumed in overcoming the viscosity or internal friction of the liquid, there will be less energy available at the orifice. These effects are especially noticeable in the lower flow rates of nozzles, as used in some of the smaller heating units, and seriously complicate calculations of such nozzles based upon theoretical consid-

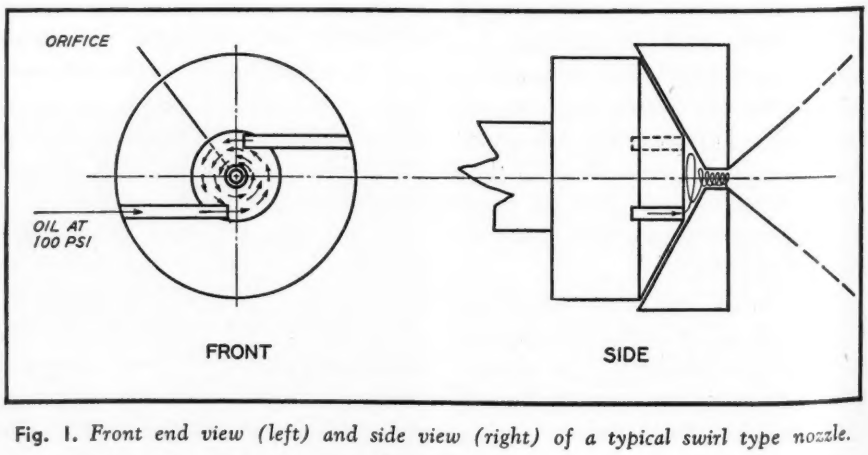


Fig. 1. *Front end view (left) and side view (right) of a typical swirl type nozzle.*

*Chief Engineer, Delavan Manufacturing Company.

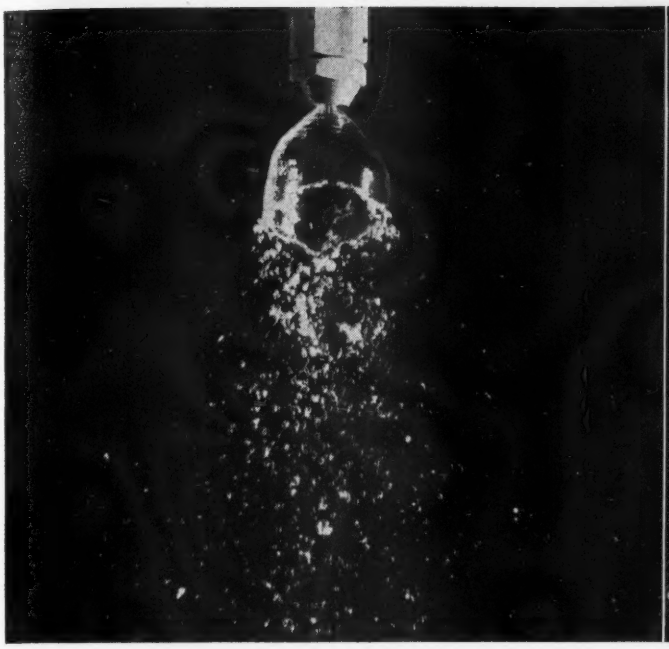


Fig. 2. *Film emerging from nozzle under pressure of 2 psi.*

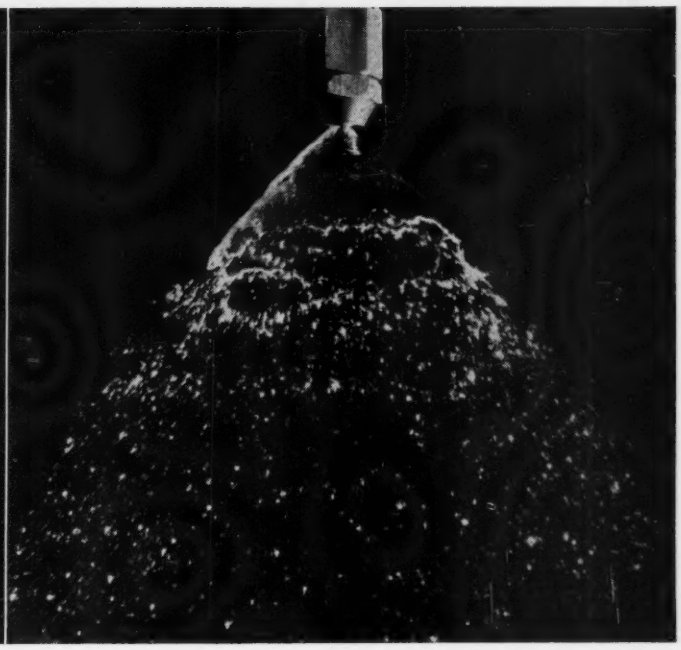


Fig. 3. *Film emerging from the same nozzle under pressure of 5 psi.*

erations. The relatively small cross sections of the passages result in higher friction losses just as smaller pipe increases friction loss.

The oil, which began rotating in the swirl chamber, continues to rotate at very high velocity as it travels forward through the discharge orifice, setting up a centrifugal force which pushes against the orifice wall. In nozzles with streamline flow, oil itself is thrown against the sides of the orifice with such force that it takes the form of a tube as it travels through the orifice, with a shaft of air through the center. Velocities in the orifice of a 1.35 GPH nozzle are above 4000 ft. per min. in some designs.

As soon as a particle of oil is released from the confining action of the orifice wall, it is thrown away from the center, tangent to the side of the orifice from which it is thrown. If centrifugal force were the only force acting upon this oil the spray angle would be approximately 180°. The pressure remaining in the swirl chamber after some of the original pressure energy has been converted into velocity energy carries the oil forward with sufficient velocity that the resultant spray angle is not 180°, but something less than that according to the design of the nozzle. Normal swirl chamber pressure in small nozzles is approximately 50 to 60 psi, when measured at the center. It is higher at the outer edge.

As the oil emerges from the orifice it takes the form of a film or sheet of oil in the shape of cone. The sheet or film is traveling away from the orifice and therefore is stretched into a thinner and thinner film. The rupturing of this film forming small droplets of oil is shown by the high speed photographs in Figures 2 and 3. This shows the film emerging from the orifice at a relatively low velocity because of the low pressure applied to the nozzle and it is possible to see the film becoming turbulent as it gets farther away from the nozzle and finally breaking up into irregular droplets. At this low pressure the spray is not a true, divergent, well established spray. The droplets are large and the film wavers very noticeably. A large capacity nozzle is used to better illustrate the action.

High Pressure Spray Pattern

In Figure 4 the same nozzle is shown at a considerably higher pressure. The difference in these sprays is readily seen. At higher pressure the film at the orifice is shorter and very stable and the spray has established a very definite pattern. The higher pressure results in higher rotational velocities in the orifice, which in turn result in a thinner film of oil emerging from the orifice and traveling at a higher velocity. The more rapid rupturing of the film results in smaller droplets being formed.

It will be noted from these photographs of actual sprays that the spray *does not rotate* after it leaves the orifice. After the droplets break off from the film of oil, each droplet is an independent particle with no further force acting upon it and must travel in the same direction in which it was thrown from the film, subject of course to the force of gravity which tends to pull it downward.

The relationship between the pressure and discharge rate from a nozzle is a rather fundamental one. The theoretical discharge from any orifice or nozzle is given by the equation

$$\text{FLOW RATE} = CA\,(2gh)^{.5}$$

in which:

C is a dimensionless coefficient for the particular nozzle in question.

A is the area of the nozzle orifice.

h is the pressure head applied to the nozzle.

g is acceleration of gravity.

This fundamental equation is modified by various factors encountered in nozzle design, but from it we arrive at a simple formula which is of value to any one using nozzles.

$$F_2 = F_1\left(\frac{P_2}{P_1}\right)^{.5}$$

In this equation:

P_1 is the pressure at which the nozzle was calibrated.

P_2 is any pressure at which it is desired to operate a nozzle other than the calibration pressure.

F_1 is the calibrated flow rate at pressure P_1.

F_2 is the flow rate at the desired pressure P_2. For example:

A 1.00 gph nozzle calibrated at 100 psi is to be used at 125 psi.

$$F_{125} = 1.00 \left(\frac{125}{100}\right)^{.5} = 1.12 \text{ gph}$$

This relationship is approximately true for nozzles in the range used for oilburners, but not exactly so. The value of the exponent varies somewhat with nozzle design and might be as low as .470. For field calculations, however, the square root relationship is entirely satisfactory and any variation from it is of interest only to nozzle designers, or where flow rates are to be calculated at extremely high pressures to fairly close tolerances.

The effect of viscosity of the oil on nozzle performance is not so easily calculated or predicted. As mentioned above, the increase in viscosity means an increase in the internal friction of the oil and a reduction in the velocity and centrifugal force at the orifice of the nozzle. This results in larger droplets in the spray and narrower spray angles. This is an extremely important consideration especially in the use of oilburner nozzles with small passages and low flow rates. Larger droplets and reduced spray angles give smoky, unstable fires and may result in noise and pulsation. That fact makes it essential that small burners be supplied with a fueloil whose viscosity is well within the Bureau of Standards specifications. Oils with viscosities greater than 40 SSU should not be used in small nozzles if good results are to be expected.

The effect of viscosity on spray angle and particle size can be considerably minimized by the use of increased oil pressure on the nozzle. This simply makes up for energy lost in overcoming the internal friction of the oil itself, and assists in establishing stable sprays and normal droplet size. The viscosity of oil can be reduced by heating. This is a common practice with Nos. 5 and 6 oils. The effect of heating the oil can be observed in a job starting cold in a cold basement. As the nozzle warms up the fire becomes smoother and cleaner.

The other important effect of viscosity on the performance of a nozzle has to do with the flow rate. Within the range of sizes normally used in domestic oilburners, and within the viscosity range supplied in these fueloils, an increase in viscosity results in increased discharge rate from the nozzle. This phenomenon can be visualized several ways. For example, it is logical that as viscosity decreases the rotational velocity in the swirl chamber and orifice increases. The resultant increase in centrifugal force would cause a thinner-walled tube of oil to travel through the orifice with a larger air core, resulting in lower flow rate.

Effect of Increased Viscosity

Conversely, increased viscosity would result in lower rotational velocity, lower centrifugal force and a thicker walled tube of oil in the orifice. If viscosity is increased enough, the nozzle discharge will be a solid stream.

The final criterion of the performance of a nozzle in this respect, however, is found in the Reynolds number

$$\frac{DV\rho}{\mu}$$

wherein:

D = orifice diameter.
V = velocity in the orifice.
ρ = density of the oil.
μ = absolute viscosity.

All terms must be expressed in consistent units.

The nozzle coefficient mentioned above is a function of the Reynolds number and it so happens that in the viscosity range in which we are operating and for most designs of nozzles in this field, a decrease in the Reynolds number results in an increase in the nozzle coefficient. This would indicate increased flow. Nozzles have been designed in which a change in viscosity from that of gasoline to that of No. 3 fueloil or Diesel oil produces no significant change in the flow rate. These are special cases, however, and do not fall within the field with which we are now dealing. Figure 5 is a typical viscosity-flow curve for oilburner nozzles.

Several engineers have asked about the effects of surface tension on the nozzle performance. Without stopping to define surface tension beyond the definition given above, it may be stated that the variation in the surface tension of domestic fueloils is so slight compared with the variation found in viscosity that the effect on nozzle performance is minor. The surface tension of most fuel-

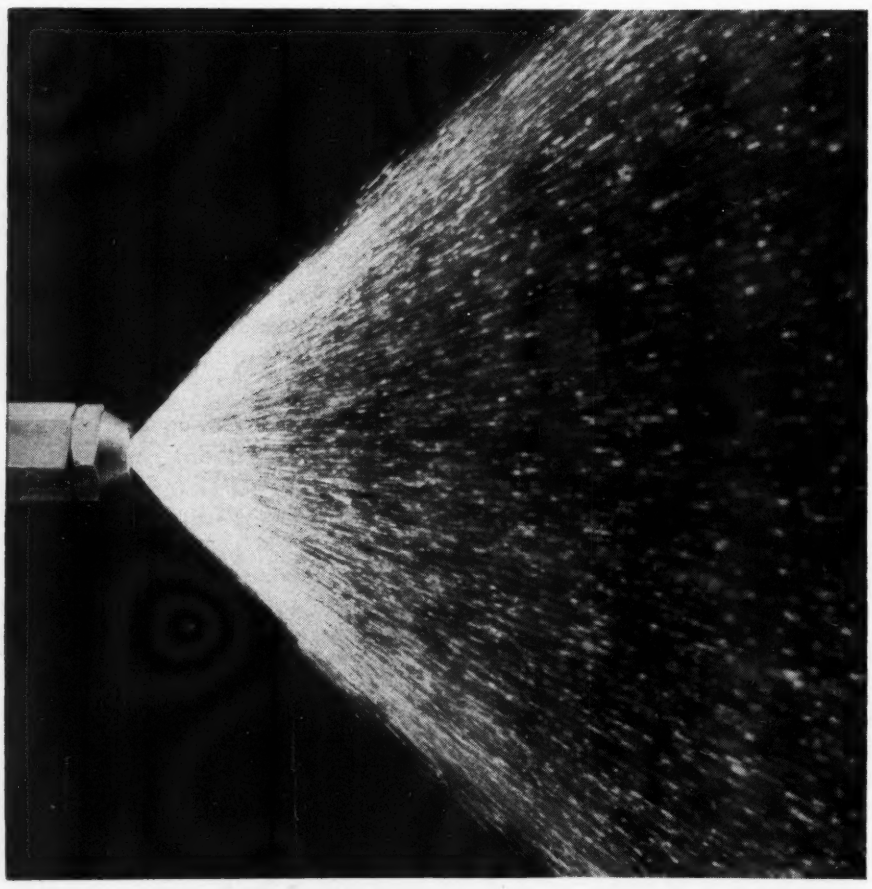


Fig. 4. *Spray pattern from the test nozzle, with pressure increased to 90 psi.*

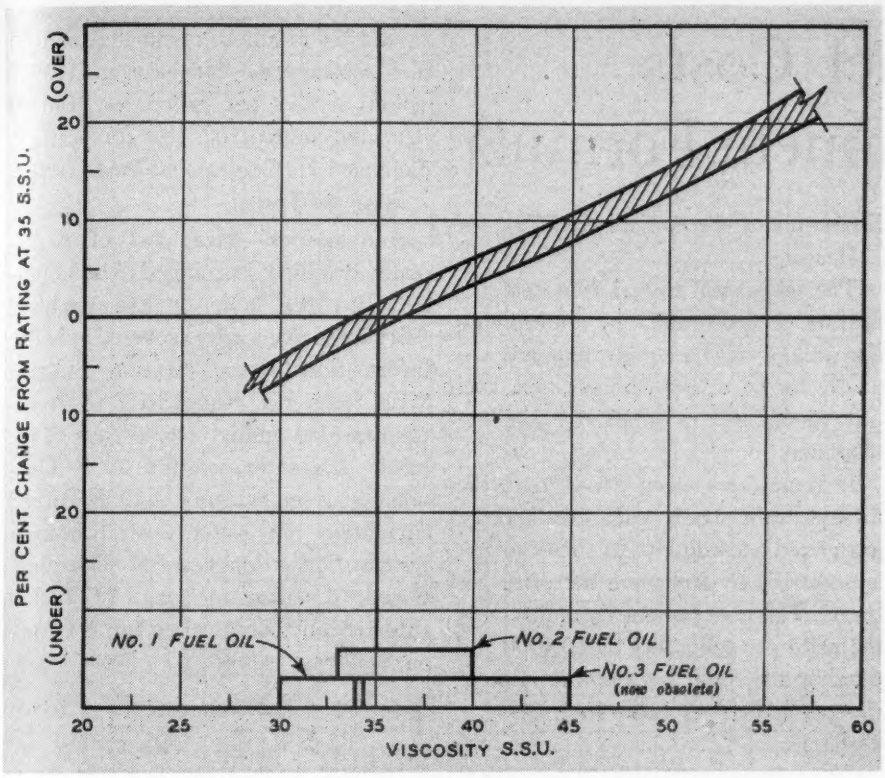


Fig. 5. *Effect of oil viscosity on nozzle output at constant line pressure.*

oils ranging from No. 1 through the former No. 3 fueloil will vary from approximately 30 dynes per centimeter to approximately 33 dynes per centimeter at 70° F. The surface tension of water at 70° F. is approximately 75 dynes per centimeter, and water offers no particular difficulty in an atomizing nozzle.

The gravity of a fueloil is generally not considered a criterion in nozzle performance when viscosity is considered in kinematic units (Centistokes or Saybolt Seconds). If viscosity is considered in absolute units, it is of course necessary to include gravity in the consideration. Test work is being done to determine the effects of absolute viscosity and specific gravity on nozzle performance independent of each other, and that information will be of value for very exacting applications. Gravity of the oil is of importance in calculating heat input, even though the flow rate in gph remains the same. Some of the catalytic fueloils have a very low API gravity and proportionately greater Btu value per gallon.

Many laboratory studies have been made on nozzle performance both in this country and Europe, and there have also been some interesting studies made in Japan. Most of the results that have been published, however, have been concerned with the larger sizes of nozzles and some special designs and most of the detailed information gathered by nozzle manufacturers is considered to be trade secrets and, therefore, is not published. It is our hope, however, that enough has been published in FUELOIL & OIL HEAT and other periodicals in recent years, and will be published in the future, to be of some help to nozzle users.

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New York Smoke Rules At Public Hearing Stage

PROPOSED RULES AND REGULATIONS of the Bureau of Smoke Control, Department of Housing and Building, New York City, were presented at a public hearing on August 3 and were subjected to protests and praise from representatives of interested organizations and associations. All agreed with the need and desirability of smoke regulation, but some, particularly the oilburner groups, entered protests against unnecessary provisions which would result from the rules as presently written.

Largely as the result of such protests, a provision which would have prohibited the use of any fuel containing more than 2% sulphur content by weight was removed pending further investigation and another which would have required the presence of a licensed oilburner operator, except where evidence is filed to show periodic servicing of the equipment during each 30 day period, was amended. An exception was allowed to exempt domestic equipment.

The rules were drawn up to prevent emissions of dense smoke, dust, soot or particulate matter from "any fuel burning equipment, internal combustion engine, locomotive, marine craft, motor vehicle, open fire, premises or vessel within the City of New York or upon waters within the jurisdiction of said city." Smoke other than dense—which is defined as that which cannot be seen through at the point of emission—shall not be emitted in excess of two continuous minutes, except when a firebox is being cleaned or new fire being built, when dense smoke shall be permitted for four continuous minutes.

The Rules provide for filing of plans and obtaining permits for the installation, alteration or construction of equipment capable of emitting smoke, soot, fly ash or products of combustion, except domestic equipment when standard commercial equipment is used up to 350,000 Btu/hr. They also call for operating certificates, payment of permit fees and for tests of installations.

All these latter items already are provided for in the Oilburner Rules, enforced by the Fire Department's Bureau of Combustibles. Also, the Bureau of Smoke Control in its rules reserves the right to approve or reject equipment, which, in the case of heating equipment, already is a function of the Board of Standard and Appeals.

Penalties provided include sealing the equipment so that it is inoperable after three violations in any year, with the provision that any "person aggrieved by an order or decision of the director may appeal to the Board."

Present indications are that the rules will be promulgated shortly, substantially as presently written. However, local associations and groups have expressed the intention of lodging more protests against those sections that require compliance with rules already enforced by other agencies and for the modification of sections which place an unnecessary burden on classes of users, notably homeowners using oilfired heating systems.

Comparative Fuel Costs By New Government Formula

DURING THE PAST 18 MONTHS Federal Government agencies interested in heating and comparative fuel costs have been using a new formula that appears quite useful. The calculations that brought the formula are based upon observations over a number of years and in a very large number of buildings. The formula is outlined as follows:

The annual fuel consumption for heating, in number of fuel units required annually for heating a dwelling to 70° F, throughout an average heating season, may be determined through use of the following formula:

$$F = \frac{H \times D}{Td \times K}$$

The terms in the formula are defined:

F = estimated annual fuel consumption in fuel units of tons for coal, gallons for oil, therms for gas, and kilowatt hours for electricity.

H = total heat loss of dwelling in Btu per hour.

D = normal annual degree days for the building location. If the average or normal degree days are less than 1,800, the corrected value of D should be determined by referring to Chart A.

Td = temperature difference in degrees Fahrenheit between the inside design temperature (70° F) and the outside design temperature used in the heat loss calculation.

K = indicated figure in Table I.

The values of "K" given in Table I have been determined for typical fuels and methods of heating. The average heat value of the fuel and the typical operating efficiency of the method of heating have been taken into consideration in establishing the values of "K" given in the table. It has been assumed that the heating equipment will be properly sized for the structure, and installed, operated and maintained in accordance with the manufacturers' instructions. The value of "K" to be used in the formula for determining "F" may be read directly from Table I after the fuel, fuel unit and method of heating have been established.

Estimation of the Annual Fuel Cost for Heating

The estimated annual fuel cost for heating is determined by multiplying the number of fuel units required annually for heating by the price per fuel unit in the area in which the dwelling is located.

In some cases when gas is used, the local gas unit may be cubic feet and the gas priced accordingly. In such cases, it is necessary to determine the price per therm. This may be done by multiplying the price per cubic foot by 100,000 and dividing the result by the heat value of the gas in Btu per cubic foot.

Examples

The following examples illustrate the use of the foregoing material in the estimation of the annual cost of heating:

Example 1. Central oil-fired system using #2 fueloil

Assumptions.—Heat loss of dwelling determined to be 82,500 Btu per hour by the Heat Loss Check Formula method covered in MPR Information Series, Heating Bulletin MPR Reference Appendix E-II. Average recorded annual degree days 5250. Inside design temperature 70°F. Outside design temperature 0°F. Forced circulation warm air central heating system. Oil-fired furnace-burner unit. Local price for #2 fueloil, $.12 per gallon.

$$F = \frac{H \times D}{Td \times K} = \frac{82{,}500 \times 5250}{70 \times 5000}$$

= 1237.5 gallons, estimated annual fuel consumption for heating. 1237.5 gallons x $.12 per gallon = $148.50 estimated annual fuel cost for heating.

Example 2. Central oil-fired system using #5 fueloil

Assumptions.—Heat loss of multi-family dwelling determined to be 3,600,000 Btu per hour by the modified ASHVE Guide method covered in MPR Information Series, Heating Bulletin MPR Reference Appendix E-II. Average recorded annual degree days 6250. Inside design temperature 70°F. Outside design temperature —10°F. Forced circulation hot water central heating system. Boiler designed for oilburning. Burner designed to burn #5 fueloil automatically. Local price for #5 fueloil, $.098 per gallon.

$$F = \frac{H \times D}{Td \times K} = \frac{3{,}600{,}000 \times 6250}{80 \times 5250}$$

= 53,570 gallons, estimated annual fuel consumption for heating. 53,570 gallons x $.098 per gallon = $5250.00 estimated annual fuel cost for heating.

Example 3. Central gas-fired system

Assumptions—Heat loss of dwelling determined to be 53,500 Btu per hour by modified ASHVE Guide method. Average recorded annual degree days 3995. Inside design temperature 70° F. Outside design temperature +10° F. Forced circulation warm air system. Gas-fired furnace-burner unit. Local price for gas $.11 per therm.

$$F = \frac{H \times D}{Td \times K} = \frac{53{,}500 \times 3995}{60 \times 3750}$$

= 950 therms, estimated annual fuel consumption for heating.

TABLE I

Value of "K" to Use in Formula

Fuel	*Fuel Unit*	*Method of Heating*	*Value of "K"*
Anthracite or High Grade Bituminous Coal	Tons	Central System—Stoker Fired	780,000
		Central System—Hand Fired	650,000
		Space Heater—Hand Fired	520,000
Medium Grade Bituminous Coal	Tons	Central System—Stoker Fired	720,000
		Central System—Hand Fired	600,000
		Space Heater—Hand Fired	480,000
Low Grade Bituminous Coal	Tons	Central System—Stoker Fired	600,000
		Central System—Hand Fired	500,000
		Space Heater—Hand Fired	400,000
#1 or #2 Fueloil	Gallons	Central System—Oil-Fired Unit	5,000
		Central System—Conversion Burner	4,750
		Space Heater or Floor Furnace	4,500
#5 or #6 Fueloil	Gallons	Central System	5,250
Gas	Therms (100,000 Btu)	Central System—Gas-Fired Unit	3,750
		Central System—Conversion Burner	3,250
		Space Heater, Wall Heater or Floor Furnace	3,250
Electricity	Kwh	Direct. (When electric resistance heating is used.)	170

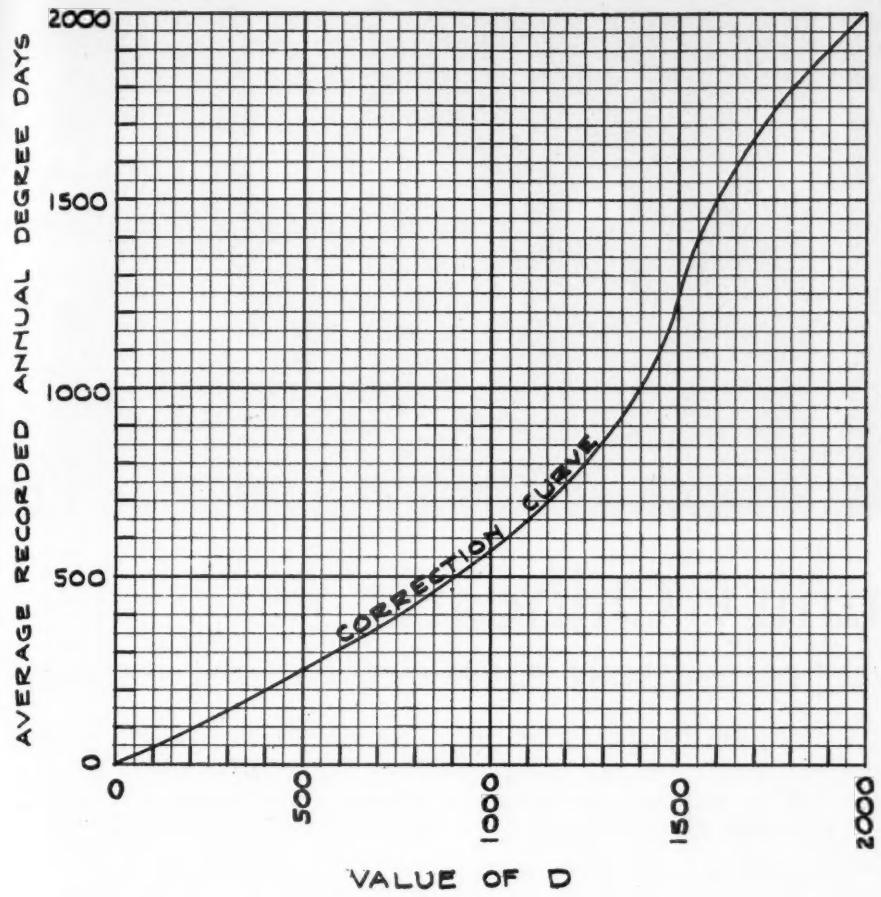


Chart *with correction curve, developed from a number of fuel consumption records, to determine the value of "D" for use in the formula when the average recorded annual degree days are less than 1800. This was developed because the degree day system fails to reflect the fuel requirements with sufficient accuracy in localities with a mild climate.*

950 therms × $.11 per therm = $104.50 estimated annual fuel cost for heating.

Example 4. Gas-fired floor furnace

Assumptions—Heat loss of dwelling determined to be 36,750 Btu per hour by Heat Loss Check Formula method. Average recorded annual degree days 1425. From Chart A the value of D is determined to be 1550. Inside design temperature 70° F. Outside design temperature +20° F. Gas-fired floor furnace. Local price for gas $.09 per therm.

$$F = \frac{H \times D}{Td \times K} = \frac{36{,}750 \times 1550}{50 \times 3250}$$

= 350.5 therms, estimated annual fuel consumption for heating.

350.5 therms × $.09 per therm = $31.55 estimated annual fuel cost for heating.

Example 5. Direct electric heating

Assumptions—Heat loss of dwelling determined to be 31,000 Btu per hour by Heat Loss Check Formula method. Average recorded annual degree days 4380. Inside design temperature 70° F. Outside design temperature +10° F. Electric wall heaters. Local price for electricity for heating $.015 per kilowatt hour.

$$F = \frac{H \times D}{Td \times K} = \frac{31{,}000 \times 4380}{60 \times 170}$$

= 13,310 Kwh, estimated annual electrical consumption for heating.

13,310 Kwh × $.015 per Kwh = $199.65 estimated annual electrical cost for heating.

Example 6. Central hand-fired coal furnace

Assumptions.—Heat loss of dwelling determined to be 81,200 Btu per hour by modified ASHVE Guide method. Average recorded annual degree days 8000. Inside degree temperature 70°F. Outside design temperature —20°F. Gravity warm air furnace, hand fired. Medium grade bituminous coal used locally. Local price for such coal $14.00 per ton.

$$F = \frac{H \times D}{Td \times K} = \frac{81{,}200 \times 8000}{90 \times 600{,}000}$$

= 12.0 tons, estimated annual fuel consumption for heating. 12.0 tons x $14.00 per ton = $168.00 estimated annual fuel cost for heating.

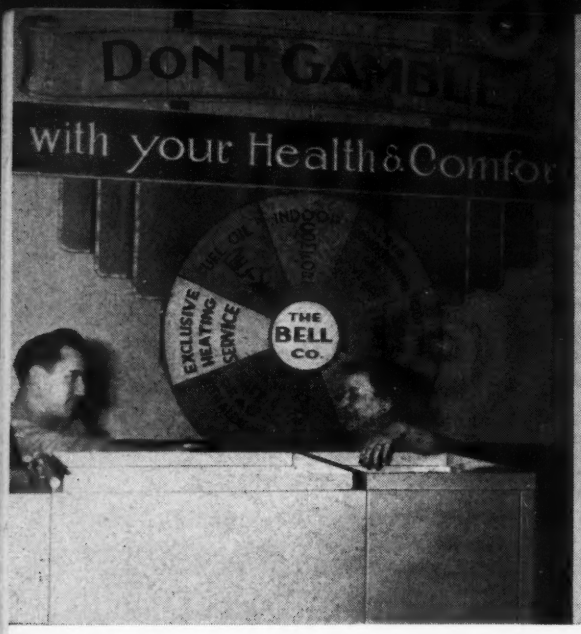
U. S. Department of Labor Fueloil Prices (June)

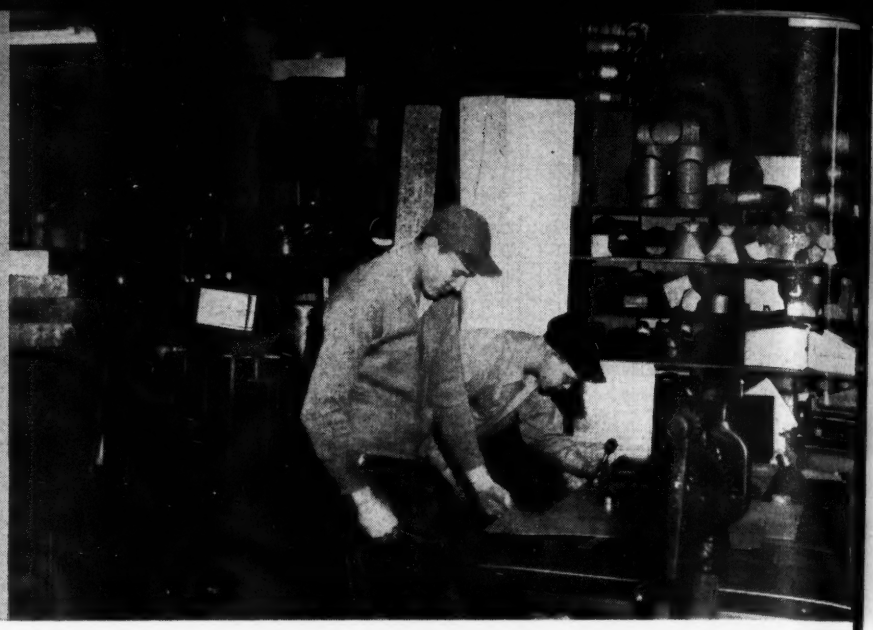
FIELD INVESTIGATORS for the Department of Labor monthly check prices of principal fuels in several cities in each section of the country. Getting retail quotations from various suppliers in each market, the prices are averaged and published. Those in the table that follow were taken June 15 (cents per gallon):

	Range	*No. 1*	*No. 2*	*No. 3*
Boston	13.67	13.25	11.40	..
Manchester	14.30	13.80	12.10	..
Portland, Me.	13.40	13.40	11.30	..
[3] Buffalo	14.44	..	12.93	12.22
[1] New York	..	..	11.33	..
Philadelphia	..	12.10	11.28	..
[1] Chicago	13.81	13.46	12.55	12.55
[4] Detroit	..	14.21	13.18	..
Milwaukee	..	14.00	13.10	13.00
[1] Kansas City	..	12.24	11.22	11.22
Minneapolis	14.17	13.93	12.88	12.93
[1] Baltimore	..	12.34	11.42	..
[1] Wash., D. C.	..	12.82	11.83	..
Jacksonville	..	13.83	12.18	..
Norfolk	..	12.60	11.20	11.20
Richmond	..	13.00	11.60	..
[2] Savannah	..	14.50	12.45	..
[5] New Orleans	..	13.82	12.36	12.36
Portland, Ore.	..	13.94	11.64	6.55
[6] San Francisco	..	13.77	11.44	6.48
[4] Seattle	..	14.77	12.65	6.74

[1] Prices include 2 per cent tax.
[2] Inspection tax of one cent per gallon included on kerosene only.
[3] Prices include 1 percent tax.
[4] Prices include 3 percent tax.
[5] Prices include 3 percent tax on all fuels except gas; prices for kerosene and fuel-oil No. 1 also include one cent per gallon State health tax, and 1/32 of one cent per gallon State inspection tax.
[6] Prices include 3.5 percent tax on all fuels except gas.

Charles P. Sweeney has become associated with *Milton E. Heyward* in the Petroleum Exchange Corp., New York 17, N. Y., a corporation organized by Mr. Heyward in December 1949 to do a general petroleum brokerage and tank steamer brokerage business. Mr. Heyward continues as president, Mr. Sweeney becomes vice president.





Small Community Oilheating

OIL MAN BELL OF CONNERSVILLE BUILDS STRONG EQUIPMENT SALES; TOTAL STAFF 8

IN LATE AUGUST a New York major oil man was talking with the editor on the telephone, discussing principally the fueloil outlook. "I can't for the life of me understand," he went on, "why our demand for No. 2 oil in the East is up this summer only 10% while in the Midwest it's up 45%. Isn't that the place where they say gas sells for half the price of oil? Aren't they after me every week to get our oil prices down so they can stay in business?"

The answer, of course, is that the major company sells its products through a division office, and the division in turn markets through district offices. Any Midwest division contains some cities and towns where gas for heating is cheap, sometimes cheaper than oil. It also contains a lot more places where gas is either not competitive or where the utility is inactive in going after heating business. In those communities, oilheating is doing a splendid volume, outfitting the new homes and converting folks from coal.

The telephone conversation brought to mind a visit last spring to Connersville, Indiana, to spend a day with oil man Lewis Bell. For some years Bell has been cooperating in our annual market studies by supplying his figures. It has been noticed that he conducts a fairly complete oilheating operation for so small a city.

Typical Small Community

Connersville has 19,000 population, located just where the rich prairies of Northern Indiana start to give way to the hill country of the south. Its farms are not quite as lush as those up above, but to compensate for that the town has three or four good factories with significant payrolls.

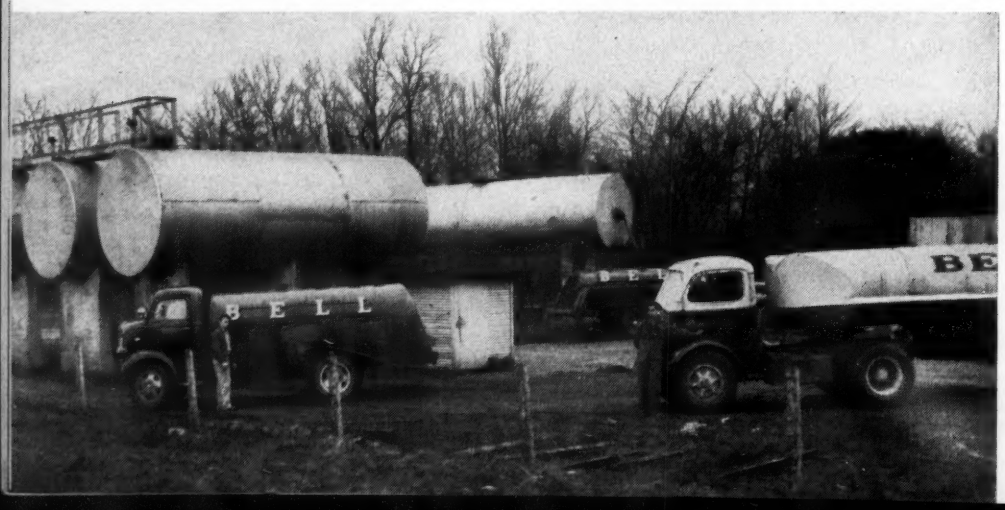
Bell has lived there all of his life. Out of school in 1915 he went into his father's ice business. Not too happy about ice because of its feast and famine seasons, the youngster studied the town's other retailing activities and concluded that the folks ought to appreciate a good tire store. He opened one in 1918, made it pay for 23 years and sold it in 1941.

Tires got him interested in motoring as an industry, so in 1923 he built a gasoline service station, made some money out of it for 24 years and sold it in 1947.

It was in summer of 1924 that a plumber sold two Oil-O-Matic burners, the town's first. There was no oil for them. The majors refused to take an interest because the business had no future, so Bell decided to try it. His first shipment was a carload of oil in drums.

Nine years later an Oil-O-Matic field man came in to see Bell. He then had all of the fueloil business in town. After coaxing him to try the burner business he cancelled the old dealer. The same brand has stuck through the 17 years since then.

Of course, other oilburner dealers have come into the market, other fueloil distributors. Of the 2,000 oilburners now operating in Connersville, Bell supplies oil to about 40%; major companies serve

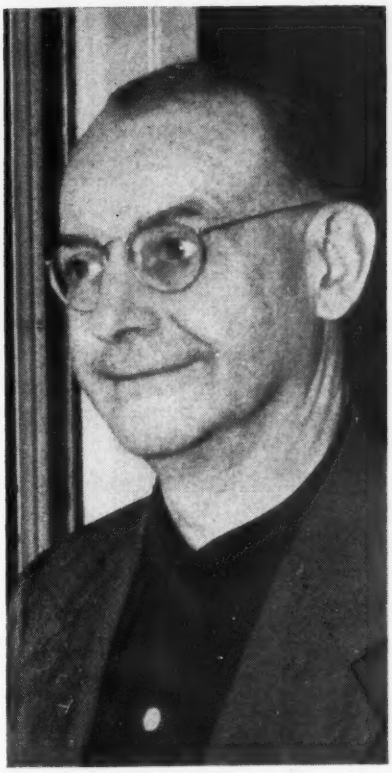


PHOTOGRAPHS. **Top left,** *Wall decoration in Bell Co. oilheating showroom, with Francis Porter, who can handle most of the jobs in the organization, and Mrs. Bell, who helps some in the office.*

Top right, *Robert Adams and James Trabue, who handle the sheet metal shop and install ductwork.*

Lower left, *The Bell bulkplant with two delivery trucks and an over-the-road transport. The men are Porter and Floyd Smith.*

another 40%; gasoline jobbers sell the balance. Most of Bell's oil accounts have come through his own burner installations. There is no gas central heating in town, and only about 200 stokers. Practically all of the business buildings, all of the newer ones, are oilheated.



Lewis Bell, *who built a strong oilheating and fueloil company in a town of 19,000, and in his spare time looked after a gasoline service station business and a retail tire store.*

It is natural that in a prosperous farming community Bell would have sold a lot of oilheating to farmers, particularly since the war. However, he gets very little of the resulting oil business, and doesn't worry about it. The farmers want to buy their fueloil from the same farm route truck that brings gasoline for the tractors, kerosene for the brooders. Often they have credit arrangements to pay when crops are cashed, so the local gasoline jobber or major company bulk station handles this business.

All Types of Heating

Bell goes all the way into heating, both wet heat and warm air. In town he goes hard after the larger building jobs as well as homes. As so often happens with a good shop in a small community, Bell's organization is quick to try out the new things. Radiant heating was taken in stride, then last year it was baseboard radiation with several jobs, and there has been one successful application of warm air perimeter heating.

In a new home development at the edge of town the company installed last year 39 floor furnaces, each having an outside above-ground 275 gallon tank in the rear. Cooling equipment has also entered the company's broad field of experience. Taking on Airtemp a little over a year ago, Bell has sold five installations, totalling 18 tons.

On all heating and cooling work, the company does its own sheet metal fabrication, makes its own ducts.

Bell also has a few ideas of his own about the oil business. For one thing, he wants large drops. He doesn't supply customers who use more than 750 gallons a year unless they have 550 gallons storage capacity. This usually means that he sells them an extra 275 gallon tank, for which he charges only $50 installed. (That figure was before Korea and he may have had to raise it this summer.) His average delivery to all types of customers is 320 gallons.

Oil Delivery on Route System

He is a believer in automatic deliveries, but not a degree-day system. Having first equipped every customer tank with a Ventalarm signal, he then operates a route system. He does take account of degree days in the aggregate, to know when to start a route, but not as applied to individual customers.

Open-minded to changes, Bell operated his own over-the-road transport for the past several seasons, but stopped it this year. As long as he bought within the state his license fee was $65 a year. But now he has made a better deal to get his oil from a terminal at Covington, Kentucky, and the interstate license would cost him $320. That tipped the scale in favor of commercial haulers, so his transport is for sale.

One very interesting observation in a company the size of Bell's is that each member of the regular staff is inclined to develop into a thoroughly rounded oilheating man. He may originally have been hired as a sheet metal worker or a steamfitter, an oil truck driver or a burner service man. The chances are before a year is out he will have done some of each. Unless there is a special rush on, the total staff is eight persons, including Bell and Mrs. Bell, who spends a part of each day in the office.

Clifford Armstrong and Bell do the selling, leaving five actual craftsmen or drivers, each hired for a particular skill but able to help in all of the other work. At the time of the spring visit, Francis Porter, rush period truck driver, was doing office work on the fueloil accounts.

In a visit like this you can't get away from the feeling that here is oilheating business in its pleasantest form. It's far removed from the slugfests of Brooklyn or Bridgeport.

An organization like Bell's, active in some phase of oilheating from its earliest days and yet apparently alert to every new development, takes deep root in a town of 19,000. It would be hard to dislodge. To the future success of the oilheating industry this kind of operation is salt of the earth.

July New Construction Totals $2.6 Billion

THE UNPRECEDENTED TOTAL of more than $2.6 billion was registered in July for new construction, according to preliminary estimates of the Construction Div., U. S. Dept. of Commerce and the U. S. Labor Dept., Bureau of Labor Statistics. This topped June's total by 6% and was 25% ahead of last July.

Total private construction in July advanced to $1,960 million, 6% over June and 32% more than last July, with expenditures on new dwelling units—57% of all outlays on private construction—rising to $1,110 million, as compared with $1,030 million in June and $659 million in July 1949.

Private construction expenditures for the first seven months of this year have advanced 23% over last year to $10.8 billion. Outlays for new dwellings were up 60% to $5.8 billion.

Industrial, farm and public utility expenditures were somewhat less in the first seven months this year, even though the July totals this year represented increases over July 1949.

July outlays for total public construction rose to $693 million, largely from a 10% increase in expenditures for highway construction.

Supplying Domestic Hot Water

SOME FUNDAMENTAL INSTALLATION AND OPERATING PRINCIPLES

by
Lionel L. Jacobs

OCCASIONALLY complaints arise that some job does not give sufficient hot water. Whenever we investigate such complaint, we find that the equipment is performing or will perform as specified, but that some condition of installation or operation, or both, is responsible. While the proportion of these unsatisfactory jobs is relatively small (less than 5%), in the aggregate they are far too many and they harm everyone in the industry.

One knocker can do far more harm than ten boosters can do good. And so, it is of real importance for this reason, if for no other, that steps be taken to eliminate complaints. Their elimination depends upon the correct observance of certain fundamental conditions. Here are some of these conditions:—

1. *There MUST be sufficient heat development in the boiler to supply the amount of water per hour at the temperature rise specified.* Thus three gallons per minute raised 80° F. (40° to 120°) requires

$$\frac{3 \times 60 \times 8.33 \times 80}{140{,}000 \times .85} = 1.01 \text{ gph}$$

(Note: In the above formula 3 equals the gallons of water per minute times 60 minutes to the hour times 8.33 lbs. per gallon of water times 80° temperature rise. The figure 140,000 represents the Btu value of a gallon of oil and .85 the efficiency at which the system operates.)

The figures in Table 1 are true for any boiler with any burner and any transfer heater of the capacity shown. A study of this table develops some interesting and important facts; facts that are not too well known by many who are specifying and installing equipment for heating domestic hot water—such as

a. It is apparent that on jobs burning 1 gallon of oil per hour, the maximum hot water obtainable instantaneously is 3 gallons per minute of water raised 80° F.

b. That the rate of flow of water must be controlled in all cases. Directly the flow exceeds the design rate, the water temperature begins to drop. Using the formula and substituting X for temperature rise, let us say that we run 4 gallons a minute on a job designed for 3 gallons 100° F. rise—85% overall efficiency—then from the table we have

$$\frac{4 \times 60 \times 8.33 \times X}{140{,}000 \times .85} = 1.26$$

This becomes X =

$$\frac{1.26}{\frac{4 \times 60 \times 8.33}{140{,}000 \times .85}} = \frac{1.26}{\frac{1999.2}{119000}}$$

$$= \frac{1.26}{.0168} = 75 \text{ deg. temp. rise}$$

Our job gives water 40° plus 100° = 140° F. when you run at design rate of flow, but when run at 4 gpm it gives water at 40 plus 75 = 115° F. At 5 gpm 100° F.

For those who want to play safe in this matter of rate of flow, a restricting device (made in sizes 3 to 6 gpm) installed in the flow from the coil ahead of all hot water fixtures, will insure that the user can not increase the rate of flow beyond the coil design output. There are several concerns making them.

c. It clearly shows that burners operating at low efficiencies (under 10% CO_2) cannot possibly maintain water at design temperature in average size homes.

d. Some people have dishwashers. They need water at 150° minimum, preferably at 160° F. They take various quantities of hot water per load, but they take it in spurts with washing and draining intervals between, and they present no great problem UNLESS hot water is being taken at other outlets. Users should be advised not to draw water until the dishwasher has completed its washing cycle.

The point is that water lying in the coil of a boiler at 180° is over 160° and there is enough for the initial wash and sterilizing (4½ quarts for the largest user of water) and while this wash is going on the water re-heats. But, if users will do as they are advised *not* by the dishwasher manufacturers "rinse dishes before placing them in dishwasher (they should only be scraped)", they run off this extra hot water and the average job can not make it up in time. Users should understand this situation.

In small apartment buildings where there are dishwashers, a storage type installation is often unavoidable.

e. What is most evident from the table is the folly of such statements as "you can have all the hot water you want, and so on" frequently made by salesmen and others without regard for the fundamental limitations on the job. All this does is to lead the customer to expect something that can't be given and so to be disappointed and dissatisfied, whereas if the limitations were explained in the first place, the customer would accept them and cooperate.

The question of adequate hot water supply is relative. Most users are happy with water at 120° F., which they temper with cold water to around 100° F. That is why so many thousands of satisfied users of instantaneous hook-ups exist.

f. Another fact that is apparent from a study of the table is that unless the total heat input is adequate, raising the boiler water temperature above 180° F. will not increase the supply of hot water. All it will do is to give an initial shot of very hot water, and thereafter, water running continuously at rated coil ca-

Table 1

WATER	3 gpm-180 gph			4 gpm-240 gph			5 gpm-300 gph			6 gpm-360 gph		
Temp. rise	80°	100°	120°	80°	100°	120°	80°	100°	120°	80°	100°	120°
Effcy	Gallons of oil burned per hour											
60%	1.43	1.78	2.14	1.90	2.38	2.86	2.38	2.98	3.57	2.86	3.57	4.28
65%	1.32	1.65	1.97	1.76	2.20	2.64	2.20	2.75	3.29	2.64	3.30	3.95
70%	1.22	1.53	1.84	1.63	2.04	2.45	2.04	2.55	3.06	2.45	3.02	3.67
75%	1.14	1.43	1.71	1.52	1.90	2.28	1.90	2.38	2.87	2.28	2.86	3.45
80%	1.07	1.34	1.61	1.43	1.79	2.14	1.79	2.23	2.68	2.14	2.68	3.21
85%	1.01	1.26	1.51	1.34	1.68	2.02	1.68	2.10	2.52	2.02	2.52	3.02

pacity or faster will pull down the boiler water temperature because the amount of heat input is insufficient to catch up with the heat taken away by the water running through the coil.

However, it is well to recognize that there is seldom any complaint about shortage of domestic hot water on steam heating jobs, mainly because boiler water temperatures are carried so much higher (212° to 240° F.) and the initial supply of water when faucet is opened is so hot that the user instantly cuts down the volume of hot water and runs cold to temper the supply to a usable temperature.

This condition can be duplicated to some extent with hot water heating systems by raising the aquastat setting to give boiler water of 200° to 210° F. in winter operation. Moreover, in doing so, the difference in incoming water temperature between summer 60° F. and winter 40° F. is compensated for by the fact that, with a setting for boiler water of 200° F., the burner would come on at say 180° to 190° F. whereas with the lower (summer) setting of 160°-170°, it would come on at 140° to 150° F.

Boilers Can Be Overfired

Well designed boilers will easily carry an overload of 20% to 25% without seriously reducing the overall efficiency, provided the combustion chamber is designed for the load. Frequently it would be wiser to fire such a boiler say to 1.25 gph where 1 gph would carry the heating load, in order to insure sufficient heat input to take care of the domestic hot water requirements.

A combination of increased heat input with increased boiler water temperature setting, will cause many complaints of lack of sufficient hot water. So many homes today call for one gallon per hour or less for heating, and it is these small jobs that increasingly are presenting a problem.

Another aid to providing desirable operating conditions both for heat and domestic hot water, is the provision of a small by-pass line between the flow and return at the boiler. This tends to limit the pull of the circulator to the heat input.

2. *All functions MUST be properly controlled.* Improper control is a constant source of failure to obtain adequate hot water. There are all kinds and types of controls available, having characteristics that make them suitable for some jobs and entirely unsuitable for others. And there are proper locations for controls, and the reverse.

Understand Control Functions

And so it is essential to understand the functions of control called for and the limitations of the various pieces of control equipment. Control manufacturers almost invariably supply adequate data in their catalogues.

True, the cost of a relay can be avoided by using a line voltage thermostat, but every line voltage control, because of the necessity of increasing the weight and area of all conductors, is less sensitive, operates on much greater differentials than does a similar control designed for low voltage.

And again, the function of safety can be properly taken care of with a limit control with a differential of 15° to 20° F., but such a control is totally inadequate as an operating control to maintain boiler water temperature and be sufficiently sensitive to start the burner in time to catch up with the heat being taken away by say 3 gallons of water per minute. The table clearly shows usually there is no margin to play with.

Far too many controls are installed, (for the installer's convenience), too high up in the system, so that the burner, when it does come on, has almost a boiler full of cool water to deal with. Operating aquastats and reverse acting aquastats should be installed as low down as possible. Actually in, or immediately above, the return is a preferred location.

It is not uncommon to find an instantaneous hot water hook-up with only one aquastat, and this an aquostat designed as a limit control. Not only is this bad because it removes the safety feature of the limit control, but doubly bad because of the wide range inherent in a simple limit control.

It may be argued that if the boiler were fired without domestic hot water, there would be only one aquastat. This is true, but in that case, the thermostat would also control, which it does not do with a forced hot water job.

More often than one would like to believe, jobs will be found with strap-on type Aquastats used as operating controls. When the lag incidental to this type of application is added to its other limitations, it is easy to understand the users problems.

3. *There MUST be free flow of hot water around all transfer tubing.* Another source of inadequate hot water can be traced to the use of dope put in the boiler to stop leaks in piping. If dope has to be used, it should be put into boiler well below the coil. Coils have been found so gummed up with this resinous substance where it has been inserted above them, as to be almost a solid block, and of course, with no circulation between the tubes, little if any heat transfer takes place.

4. *Transfer equipment MUST be of adequate size.* For checking the adequacy of the copper coils furnished, the following internal surface areas have been calculated from the formula in the Heating & Ventilating Society's guide, for 100° rise with 180° boiler water—

Table II

6 gallons per minute—	22¼ sq. ft. required
5 gallons per minute—	18½ sq. ft. required
4 gallons per minute—	14¾ sq. ft. required
3 gallons per minute—	11 sq. ft. required

Instantaneous Hot Water Advantages

Instantaneous hot water has many advantages in addition to convenience. It is worth while in order to have instantaneous hot water for the user to understand what has to be done to obtain it, and comply with these requirements. Here are the advantages—

a. No storage water tank is needed. Water storage tanks last only a limited time, with some water conditions (such as Philadelphia) only 3 to 4 years average. They are expensive to replace. With a water storage tank, no matter if the tank is provided with an insulating jacket, there is a constant heat loss. To maintain a supply of water at a predetermined temperature, the burner must run frequently, and this means a greater consumption of fuel than with an instantaneous coil.

b. With a tank type installation, because of the continual load due to standby loss as explained above, this loss must be added (at a rate of 1½ sq. ft. of hot water radiation for each gallon of water storage tank capacity) to the standing radiation in determining the load or size

of the boiler and burner. A 60-gallon hot water storage tank would thus add 90 sq. ft. to the boiler load.

With an instantaneous installation, heat is used for hot water, only when water is being used, and in a residence, this is seldom for more than 10 or 15 minutes, three or four times a day. The effect of this on the heating is negligible, and so this load can be ignored in figuring the boiler size. However, if the capacity of the boiler needed for heating is insufficient to give the amount of domestic hot water at the temperature required, and the next size boiler would do so, it would be cheaper in first cost, and much cheaper in operating cost, to spend the relatively small difference for the next size boiler, and use an instantaneous coil. Many times the larger size boiler would be needed in any case for a storage type installation.

The problems of supply of domestic hot water from the boiler may lead some persons to advocate a separate source of domestic hot water. This, however, should be avoided if possible because:

1. The entire equipment, boiler, burner, and hot water accessories, last longer, and require less service if they do not stand idle in the summer.

2. The overall fuel consumption is lower for one piece of equipment than for two pieces.

3. The operation of the heating plant is improved by maintaining a water temperature such as that required for domestic hot water.

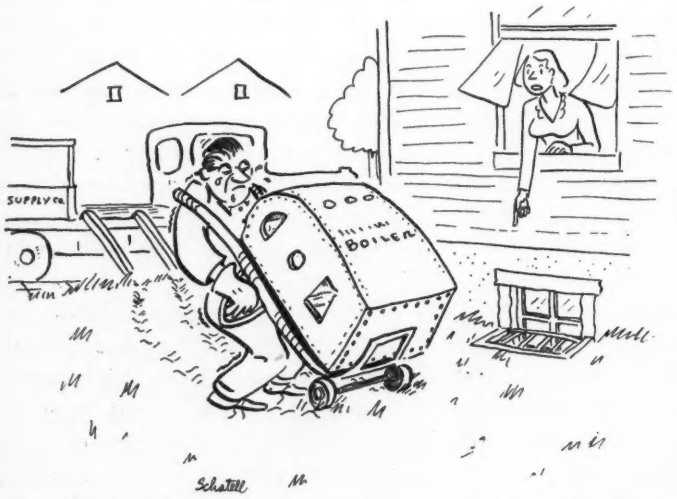
Where the customers requirements can not be furnished either—by an instantaneous coil, or by a coil in the boiler and an adequate storage tank, then a separate source of hot water should be furnished, and the coil in the boiler should be used to raise the temperature of the water entering this separate equipment, greatly reducing the load. Thus while main water may be entering the coil in the boiler at 40° F. and leaving it at say 100° F., it will be much easier for the supplementary equipment to raise water from 100° to 160° than from 40° to 160°. With an arrangement of this kind, the auxiliary equipment will seldom if ever operate during the summer when both hot water demand and temperature differentials are at a minimum, and in the winter it will function to provide additional heat capacity with the auxiliary heat demand held to a minimum.

Table III

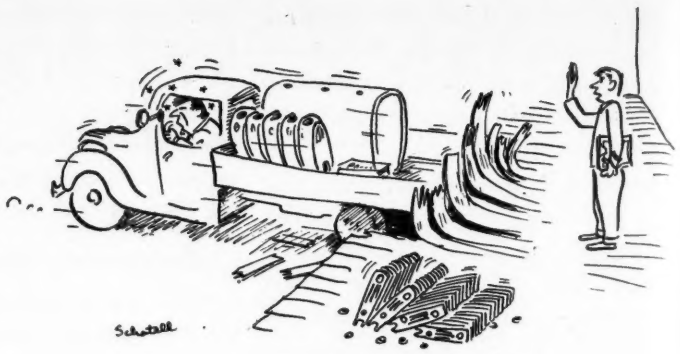
Temp. Rise	*80°*	*100°*	*120°*
% Effcy.			
60	.007933	.009916	.0119
65	.007323	.009154	.01098
70	.0068	.0085	.0102
75	.006347	.007933	.00952
80	.00595	.007438	.00892
85	.0056	.007	.0084

By multiplying the factor from Table III that refers to the correct efficiency and temperature rise, by any desired volume of water in gallons per hour, the required rate per hour in gallons of oil can be found.

Summed up then, to insure the proper elements of an efficient and satisfactory supply of domestic hot water, we need correct selling, correct nozzle size, correct installation, including the right controls and their proper location, correct circulator operation and correct operation by the user.



"The installation crew isn't here yet, just put it down in the cellar."



"Hold it!"

Oil Industry Prepared For Emergency, Says Porter

IN AN OPEN LETTER, sent on August 10 to oil men in all parts of the country, Frank M. Porter, president, American Petroleum Institute, New York 20, N. Y., declared that the American oil industry is better prepared than ever before to meet any national emergency.

"Compared to the peak war year of 1945," he said, "total U. S. crude oil production capacity has been increased 27%, refining capacity has been increased 21%, and proved crude oil reserves have been increased 24%.

"In these five years American oil companies plowed back into their business more than 8 billion dollars for exploration and development and to provide these new facilities—the great bulk of this from operating profits."

Conceding the possibility of greatly expanded military requirements and difficulties that could come from uncertain steel and other essential supplies, Mr. Porter alluded to the fact that such expansion and operation is possible because of the competitive conditions existing between privately managed and owned oil companies. He concluded with the statement ". . . that the industry will be able to supply the largest possible volume of our national petroleum requirements if we have the largest possible freedom in our operations."

◈

Lester R. Snyder, manager of the Baltimore branch sales office, National Radiator Co., Johnstown, Pa., died on August 16 in a Baltimore hospital after an illness of several months. A native of the city, Mr. Snyder joined National as a clerk in 1929. He is survived by his wife, two daughters and a son.

Belabor the Obvious; Accent the Trite

A LAMENT ON TRAINING FOR SERVICE REFINEMENTS WITHOUT FUNDAMENTALS FIRST

by
Fred Feigenbaum

OILBURNER PEOPLE ARE always getting into some kind of trouble, big or little, because of lack of understanding. This lack is traceable to several things. One is the fact that oilburning reaches out into other fields, the knowledge of which is overgeneralized and reduced to thumb rules. Many of the errors made in the sales department, where boilers, chimneys, and heating systems are wrongly estimated, are the result of this. Fortunately these thumb rules err mostly on the safe side, so that little harm is done either to the customer or the dealer.

In the mechanical departments our errors are often the result of dealing with the same things, but specifically our thinking, even where it concerns oilburners exclusively, is often sloppy. How long have we been saying "intermittent ignition?" When are we going to get around to an expression of the fact that ignition goes off at the end of the starting period and does not come back on during the rest of the operation? When are we going to stop using the phrase "scavenger period" in speaking of the normal recycle period of a relay after a power interruption? Someone may object that these are only words, and that we really know what we are talking about in spite of the words we use. But do we?

The Service Department

Let's take a look into the service department. These servicemen, where and how did they learn the trade they practice? You know that there is no such thing as a serviceman's helper. Can a man really learn a trade without some apprenticeship? Most of these men were probably installers, or installers' helpers at one time. There is considerable difference between these two trades. Installers are builders; few of them can be successful problem solvers on a competitive basis with career servicemen. Those who become servicemen do so because they have some special knowledge or aptitude beyond installation work. But they must have accumulated most of their service knowledge after becoming servicemen.

At what point did each serviceman learn the biggest fact-of-life about oilburning? Does every one of them realize this fact, even now? The fact that no oilburner must be allowed to run without fire?

This is fact Number One of oilburner service. No service department should ever allow its men to lose sight of it. All service department thinking should revolve around it. There is no more important fact in the industry.

It may be argued that every serviceman is conscious of this fact. Mere consciousness is not enough. It should be stressed and restressed. It is the central fact of oilburner safety.

I have met dozens of servicemen who will go to the control panel and press the reset button without even opening the furnace door to see if they can detect some dangerous condition before starting the burner. Only after having pressed the button do they decide on a plan of action. Then there may be a hurried search for the main switch.

It takes the individual serviceman a long time to learn that the burner is shut down by the safety switch to prevent danger. The control people have been engineering with that fact in mind for decades. No fire, stop the operation. Generally the new serviceman has to experience a case of delayed ignition with his own senses before he gets the idea.

What does this prove? Well, for one thing, it proves that we accept facts factually. One fact is no more important than another. No stress, no emphasis. We learned this one years ago with many others. No effort is made to make it stand out.

After pressing the safety button a hundred or more times the new serviceman discovers it for himself. If he tells somebody in his shop what happened he is laughed at and told. "Hell, I thought you knew that. Everybody knows that!"

The entire shop, from the switchboard girl to the porter, knows there is a button on the control panel that has to be pushed sometimes to get the burner started. The service dispatcher every day asks dozens of customers, "Did you press the button?" Often with no clear realization that it is a safety button he is talking about.

Every year the company sends out several thousand proposals to burner owners to summer-service their equipment. The chimney and the furnace are to be cleaned, likewise the nozzle and the strainer and the fan, the motor oiled, etc., etc. Does this proposal even mention that the safety switch will be tested?

Safety Switch Testing

How many servicemen ever test a safety switch? This important cog in the oilburner control system seldom really has to go to work. It just stands there waiting through hundreds or thousands of normal starts, waiting for the burner to start without fire. How does the serviceman know if it will really shut off the burner if he doesn't test it? The safety switch is the equivalent of brakes on an automobile. When you need it you need it bad. No auto mechanic can afford to be careless about brakes.

Opposite emphasis if often placed on such routine business as cleaning the nozzle. Over and over again the new serviceman hears of the danger of using needles and pins on their sacred parts. One might gather they were talking about the Hope Diamond. Of course it is possible to ruin a nozzle with a needle. But it is also possible to ruin a job of work on a lathe with a sharp steel tool. A man who finds himself fishing a piece of broken toothpick out of a nozzle orifice knows there is something wrong with that technique also. Every serviceman has destroyed a few nozzles in the process of developing his method of handling them. After that he could be trusted to clean a nozzle no matter what method he arrived at.

Speaking of dirty nozzles, why overemphasize the routine and neglect principle? Very often a man cleans a nozzle without taking the step of finding out

why it got dirty. Nozzles don't always get dirty because of dirt in the oil. When a nozzle is found blackened on the outside it may have been overheating and coking. If the new serviceman is not taught the many causes of nozzle-overheating he may be years learning them.

Ignition Voltage

The second most important thing to be emphasized in the progressive service department is Ignition Voltage. The serviceman never must be allowed to neglect it; he must be made aware of every means by which it could fail. He must maintain a continuing respect for its fondness for wandering across carbon-carpeted electrode insulators and transformer terminals. By the way, whose idea was it originally to place the transformer terminals inside the blast tube where they could accumulate carbon? And cause the serviceman to scrape the skin off his knuckles, and damage the cable insulation while removing the nozzle assembly? What were the signs in the planets the day that backward step was taken?

I have found servicemen replacing the nozzle assembly into the burner without bothering to wipe off a thick coating of carbon from the electrode insulators, or checking the condition of the ignition wires. Others go to the trouble of sandpapering the metal electrodes, as if that might persuade the 10,000 volt electricity toward the spark gap. Many oilburner manufacturers place metal parts in the front-end where the slightest misadjustment could cause the spark to be short-circuited. Hazy thinking about ignition voltage abounds throughout the industry.

Ignition information cannot be just stated, or taken for granted: it has to be brought out so that the man who must work with it has a perfectly clear idea of what to expect from it. You don't just tell him; you show him. It must be demonstrated, emphasized, even dramatized. Ignition is not simply another collection of routine facts.

The hydraulics involved in pumping oil are a big mystery to many new servicemen, and also to some of the older men. Nobody bothers to tell a new man what goes on in a pump; he is supposed to know. There are quite a few men who have been servicing burners for years without ever having learned what those gears actually do. Many find it difficult to differentiate between pumping and piping problems. Large numbers of pumps have been condemned when the suction line was at fault. Clear interpretation of the indications of a vacuum gauge is not one of the aptitudes of many servicemen. These things cannot be learned by osmosis; the man has to be taught, and the teaching should take place before his mind has had a chance to accumulate the garbage that seems to clutter the minds of some of the so-called service experts. Pumping principles should be a third major point to be stressed in the service department.

The serviceman is judged by his callbacks, which is another way of saying his failures. This places a negative emphasis on an important phase of oilheating, and perhaps reveals our unconscious attitude toward it. The dealer has installed the job; the profit (such as it was) has been taken. It is only natural that he would like to consider the transaction closed. The need for service is a constant reminder that he is not finished with the job, and that it still costs. The fueloil dealer, who may or may not be the installer, is often forced to service the oilburner, in many cases at a loss. He might wish the need for service out of his life. Old Doc Freud would call it the Death Wish, such as one might have for a nagging wife, or boss.

"I trained that man"

There is also the attitude of the former employer of a successful serviceman whose name comes up in conversation, when he says with some pride, "I trained that man." Few oilheating men can make that statement truthfully, though they all think they can.

In the present order of things we don't train servicemen. We select them, or reject them, on the basis of a couple of week's trial. The new man trains himself, for better or worse. Nobody stands in back of him on his first hundred jobs and says, "That nozzle is dirty. This is how you test for it," or "That bellows leaks; you find that by turning this regulating screw."

In most shops a man becomes a serviceman by walking in and saying, "I'm a serviceman." That is the lie he has to tell to get started. He knows that very few shops have any facilities for training servicemen.

On the other hand the entire industry blames servicemen as a group because their failures make selling difficult; in fact they are held responsible for failures which really are engineering failures; notably the long-standing failure of our designers to get anywhere with pulsation, and the smoke-odor-soot combination that goes with it. This is probably the greatest single cause of customer discontent with oilheating equipment. If other fuels encroach on fueloil a large percentage of our loss will be among the neighbors and friends of the owners of pulsating installations.

Training Grossly Neglected

Few deliberate dollars are spent by the industry on training servicemen, even by the more progressive oilheat dealers. Everybody seems to expect wisdom to grow on the man by contact. A man's early failures may cause him to be rejected, even though he has shown himself to be a good mechanic otherwise, and capable of thinking. Sometimes failure crushes a man who might have been good serviceman material; he makes a few bad decisions that might have been avoided if there were some signposts in the trade; he gives up and drifts back to installing or other work without giving himself a fair trial. Had he been given a clear and definite picture of common oilburner problems, with emphasis on important trade information, the loss of a good serviceman might have been prevented. This would also improve the breed by making it more difficult for the merely nervy man, the go-getter with less ability, to maintain a foothold in the trade.

All this points to important changes to be made in the way we look at service right now. The service department should not be thought of as a profit-eating necessary evil. It should not be considered an appendage of the installation department, as it is in many shops today. It should not be just a headquarters for sending out men every morning to perform some mysterious duties with machines gone wrong.

The service department should contain the answer to every possible prob-

(*Continued on page 162*)

announcing a new

DETROIT CERTIFIED CONTROL

"Experience Engineered"

INSIDE and OUT!

The New **DETROIT CRC-633**

FUEL TRANSFER PUMP

★ **HEAVY RUGGED CONSTRUCTION**—The best of materials and fine workmanship plus heavy gauge steel for strength, assure long trouble-free service.

★ **NO RETURN OR OVERFLOW LINE REQUIRED**—Use of two switches eliminates need of overflow line. Rugged steel linkages connect floats and switches. Available with half-inch overflow connection if required by local codes.

★ **POWERFUL MOTOR**—Fan cooled to prevent overheating—equipped with easily lubricated, long life bearings.

★ **STAINLESS STEEL VANES**—Equipped with mechanically loaded, stainless steel pump vanes—all pump parts precision-machined for quiet, efficient, long life operation.

★ **STRAINER AND BALL CHECK**—100-mesh monel metal strainer easily removed for cleaning—strainer housing includes ball check to assure holding pump prime during long off periods.

★ **CAPACITY**—Delivery capacity 3 gallons per hour at a 25 ft. lift with No. 1 and No. 2 fuel oil, or Pacific Coast Diesel Oil.

Inside and out, the new DETROIT CRC-633 fuel transfer pump is a truly remarkable advance in the oil burner equipment field. Its many new and outstanding features, resulting from constant year-in, year-out experience in manufacturing oil heating equipment, give positive assurance of quiet, reliable and trouble-free operation. In every way the CRC-633 has been engineered to excel. Contact your nearest DETROIT wholesaler and ask for the DETROIT CRC-633—your inspection will convince you that DETROIT experience, engineering and insight have made it the finest fuel transfer pump obtainable!

DETROIT CRC-433 For Vaporizing Burners—Provides an automatic fuel system for vaporizing type space heaters, water heaters, ranges, floor furnaces, or basement furnaces. Fuel is automatically supplied to the burner according to consumption. Equipped with easily cleaned strainer. Motor driven vane pump operates only when fuel is needed—shuts off automatically if tank runs dry. Quiet in operation.

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Canadian Representatives: RAILWAY & ENGINEERING SPECIALTIES, LTD.—Montreal, Toronto, Winnipeg

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DETROIT HEATING AND REFRIGERATION CONTROLS • ENGINE SAFETY CONTROLS • FLOAT VALVES AND OIL BURNER EQUIPMENT • DETROIT EXPANSION VALVES AND REFRIGERATION ACCESSORIES • STATIONARY AND LOCOMOTIVE LUBRICATORS

Serving home and industry AMERICAN-STANDARD • AMERICAN BLOWER • CHURCH SEATS • DETROIT LUBRICATOR • KEWANEE BOILERS • ROSS HEATER • TONAWANDA IRON

What Is "Non-Electric Heating Apparatus?"

IN AN EARLY-AUGUST release, the Departments of Commerce and Labor, Washington, issued jointly a list of "essential" industries. This was done for the guidance of local draft authorities in considering deferments of individuals.

Oilheating as such did not show up in the list, unless it was included in the item, "Non-electric Heating Apparatus." Such an ambiguous term naturally started a lot of speculation over whether it meant that oil, gas and coal heating were essential, electric heating was not, or whether non-electric heating meant non-automatic heating.

In trying to run this down in Washington, the first thing discovered was that there were some red faces over the whole list. The Defense Department wanted it gotten out virtually overnight and so the men assigned the job did the best they could in a few hours. Some Government men didn't know what "Non-electric heating apparatus" was. Then a Commerce Department official pointed out that the term had been shortened from an official listing set up by the Bureau of the Budget.

Of course this whole project would be not too significant if it were to stop with draft deferments. But there is always the possibility that once an industry has been included in, or omitted from, an essentiality list the action might become a precedent for something more vital at a later date.

Library searching discovered that the correct industry name that had been bobtailed in the rush is "Heating Apparatus (except electric) and Plumbers Supplies." Detailed descriptions contained all of the information needed to show that oilburner manufacturing is included in the group, so in the first brush with essentiality, we are on the right list.

You might some time need to know how oilburners and related products are officially classified as industries, so here are the designations:

Bureau of the Budget, Executive Office of the President, November 1945

Standard Industrial Classification Manual

Volume I—Manufacturing Industries

Part I—Titles and Descriptions of Industries

Page 52 Group 343 . . . HEATING APPARATUS (EXCEPT ELECTRIC) AND PLUMBERS' SUPPLIES.

Industry No. 3431 Plumbing Equipment and Supplies
(did not copy description)

Industry No. 3432 Oilburners, Domestic and Industrial

Establishments primarily engaged in manufacturing distillate or fueloil burners for installation in heating and cooking equipment, for industrial process equipment, and for generating steam for power.

Industry No. 3439 Heating and Cooking Apparatus (except electric) Not Elsewhere Classified

Establishments engaged in manufacturing heating and cooking equipment not elsewhere classified. Important products of this industry include stoves, ranges, water heaters, warm air furnaces, domestic steam and hot water heating apparatus, cast iron and non-ferrous radiators, complete gas and oil boiler-burner units, furnace-burner units, boiler-stoker units, incinerators, unit heaters, gas burners, portable ovens, steam tables and cafeteria food-warming equipment.

Page 53 Group 344 . . . FABRICATED STRUCTURAL METAL PRODUCTS

Industry No. 3443 Boiler Shop Products

Establishments primarily engaged in manufacturing industrial power and marine boilers, smoke stacks, heavy tanks, and other boiler shop products; and fabricated plate work which involves the cutting, punching, bending, and shaping of steel plates for other industries, or for assembly on the job.

Industry No. 3444 Sheet Metal Work

Establishments primarily engaged in manufacturing cornices, ventilators, skylights, gutters, and other types of sheet metal work for buildings (not including fabrication work done by construction contractors at the place of construction) and manufacturing sheet metal stovepipes, light tanks, bins, furnace casings, etc.

Oilburner Servicing Interpreted As Critical

AFTER THE DEPARTMENTS of Commerce and Labor had issued in early August their list of essential industries for draft deferment considerations, the Labor Department published a list of critical occupations as a further guide, the intent being that these shall in some way be identified with the essential industries.

There is no direct reference to oilburning or oilheating in the list but the question arose as to whether they would be included in the general description of "Maintenance Mechanic." The Department's Critical Occupations List, Part II, August 3, 1950, gives this general description:

"MAINTENANCE MECHANIC. Keeps machinery and mechanical equipment of an establishment in a state of good repair: Examines machines for defects in operation, locating faulty parts by listening to machine while it is in operation or by other methods based on his mechanical knowledge. Dismantles or partially dismantles machine to gain access to defective part and removes part, using various hand tools, such as wrenches, screw drivers and pliers. Reassembles machine, making necessary adjustments to insure efficient operation. Is usually required to have a knowledge of the operation of the machines he repairs."

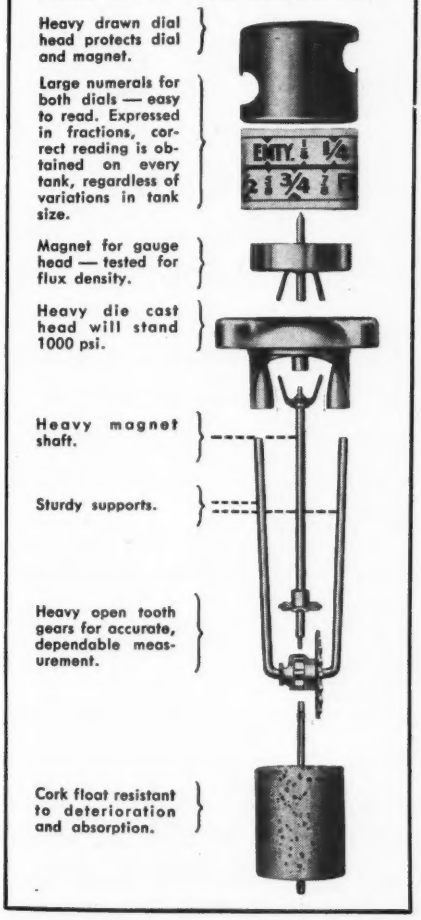
This certainly describes the work of a burner service man, but there would be some question over whether this applies to mechanical facilities in a home or apartment building as well as a factory. An appointment was made to discuss this with J. Dewey Coates, Secretary, Committee on Essential Activities and Critical Occupations, Department of Labor, Washington.

It is his belief that this description of Maintenance Mechanic would include the skilled service man for residential oilburners. He pointed out that the listing of oilburner manufacturing as an essential activity in the Commerce-Labor release more or less insures that their maintenance will be considered critical. For the present he will use this interpretation. However, the August 3 listing of critical occupations does contain this sentence, "This list will be subject to review and revision."

Why make NEEDLESS Service calls?

Always install Rochester "Dual-Dial" Gauges . . . they *can't* vent smelly oil fumes!

STURDY CONSTRUCTION ASSURES LONG LIFE WITH *NO MAINTENANCE*

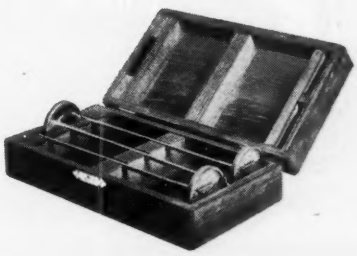

Heavy drawn dial head protects dial and magnet.
Large numerals for both dials — easy to read. Expressed in fractions, correct reading is obtained on every tank, regardless of variations in tank size.
EMTY. 1/8
2 3/4 F
Magnet for gauge head — tested for flux density.
Heavy die cast head will stand 1000 psi.
Heavy magnet shaft.
Sturdy supports.
Heavy open tooth gears for accurate, dependable measurement.
Cork float resistant to deterioration and absorption.

No oil burner dealer needs to make a service call on account of a gauge . . . if he uses Rochester "Dual-Dials." Designed with a solid pressure-tight, leak-proof head, smelly oil fumes can't vent into the basement. Neither can it leak under pressure. There simply is no point in taking a chance on flimsy gauges when for a few pennies more you can get trouble-free service with "Dual-Dials."

Sturdily made, and featuring permanent magnetic indication, Rochester "Dual-Dial" Gauges have been Underwriters' listed for more than 25 years. Stocked by leading wholesalers everywhere for 275 gallon oil burner storage tanks in the following depths—22″, 24″, 26″, 27″, 42″, 44″ and 47″; 1½″ and 2″ pipe thread connections. Special lengths to order.

Increase Your Profit and Customer Good-will

The Rochester CAC (Circulation Air Control) thermometer Kit enables you to quickly and accurately balance air temperature in any type of forced air heating unit. No further equipment is needed. Send for information today.



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Please send ☐ Literature and prices on "Dual-Dial" Gauges
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Company .....

Address .....

City ..... Zone ..... State .....

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Make Your Radiation Estimating

SIMPLE, PRACTICAL

with

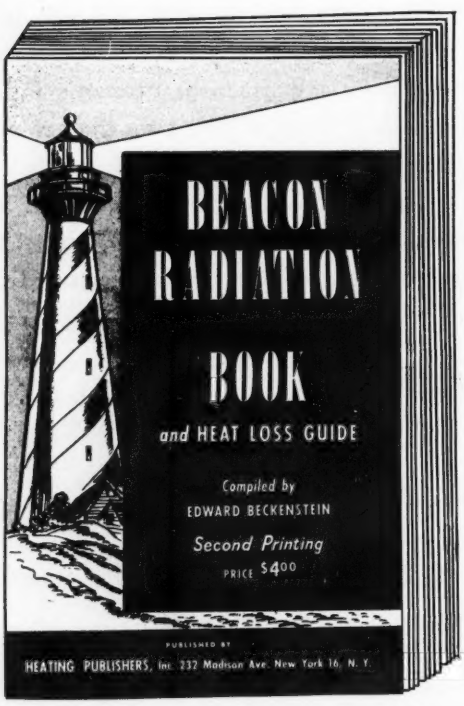
BEACON RADIATION BOOK

It's a Time-Saver
for
DEALERS
SALESMEN
ESTIMATORS

Ready about Dec. 1

$4

WINDOWS	EXPOSURES	SIDES EXP.	19 X 29 - CEILING HEIGHT - 7'	8'	9'	10'	11'	12'
			ST 36	42	46	51	55	60
1	1	19'	HW 58	67			78	96
			ST 41					69
		29'	HW					



THIS pocket-size book shows the required radiation for all rooms of ordinary size with from one to three windows, one to three exposures, and every combination of walls exposed. Figures are based on calculations of the space by the Btu method on a 0° to 70° design temperature. A table shows corrections for other design temperatures.

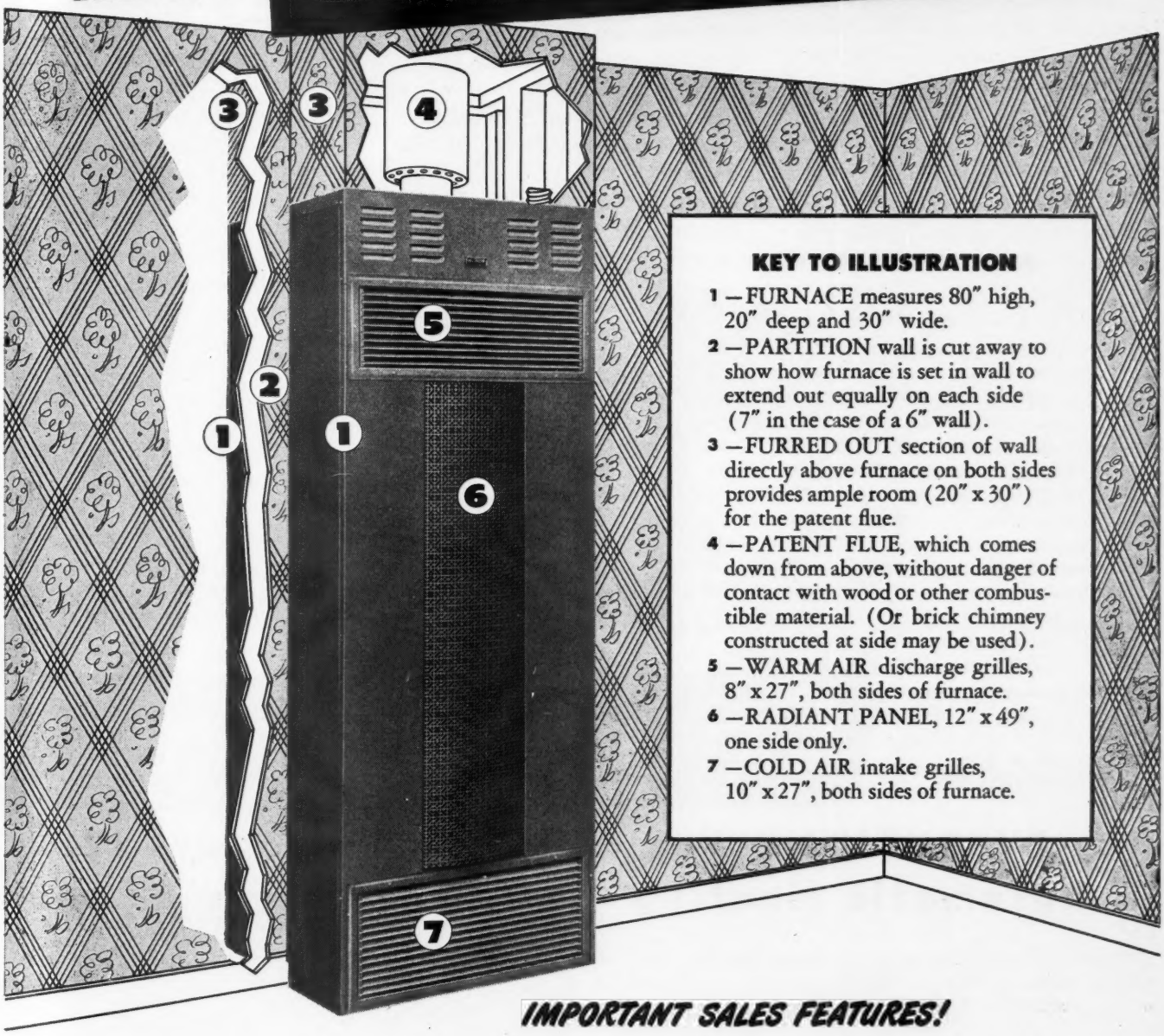
Steam and hot water radiation required for every room from 5 x 5 to 20 x 30 ft. A single volume of 175 tables.

Other sections of the book show the square feet of radiation in each section of radiators of various styles and designs. A wealth of information on required radiation that can be carried easily in a pocket or brief case, or used as a desk reference.

Please send check, money order or cash to avoid bookkeeping on the thousands of small orders we must handle in book sales.

HEATING PUBLISHERS, Inc. 232 Madison Avenue
New York 16, N. Y.

NEW! H.C. Little Oil Wall Furnace



KEY TO ILLUSTRATION

1 —FURNACE measures 80" high, 20" deep and 30" wide.
2 —PARTITION wall is cut away to show how furnace is set in wall to extend out equally on each side (7" in the case of a 6" wall).
3 —FURRED OUT section of wall directly above furnace on both sides provides ample room (20" x 30") for the patent flue.
4 —PATENT FLUE, which comes down from above, without danger of contact with wood or other combustible material. (Or brick chimney constructed at side may be used).
5 —WARM AIR discharge grilles, 8" x 27", both sides of furnace.
6 —RADIANT PANEL, 12" x 49", one side only.
7 —COLD AIR intake grilles, 10" x 27", both sides of furnace.

IMPORTANT SALES FEATURES!

Perfect for Small Homes Without Basements—Saves Valuable Floor Space—Automatically Lights Itself—Burns Low Cost Furnace Oil

Fully automatic operation, electric ignition and controls (manual control also available) . . . patented H. C. Little burner uses low cost furnace oil . . . unit occupies minimum space, permits wall to wall carpeting . . . radiant panel one side and warm-air-discharge, cold-air-return grilles both sides assure an excellent job of heating . . . ample capacity for homes in colder climates . . . in excess of 60,000 BTU output per hour.

For full information, write Dept. 9

H. C. Little Burner Company

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Belmont, Mass.
Boise, Idaho
Chicago, Ill.
Columbus, Ga.
Detroit Lakes, Minn.
Des Moines, Iowa
Fayetteville, N. Car.
Newark, N. J.
Portland, Ore.
Prescott, Ariz.
Reno, Nev.
Salt Lake City, Utah
Seattle, Wash.
St. Louis, Mo.
St. Petersburg, Fla.

fuel oil & oil heat

More Than Half New Homes Heated by Warm Air

CONTINUING ITS SURVEY of preferences of new home builders, the magazine *Better Homes and Gardens* has determined that 60% of new homes will be heated either by gravity or forced warm air systems. The survey was made on a national basis, with questionnaires distributed to new home builders in 37 Eastern states and to a representative list of home builders in 11 Western states.

Nearly half of the new homes, 49%, being built are to be heated with forced warm air, concentrated in the East North Central section, 63%, and in the West North Central area, 74%. Gravity warm air is specified for 11% of all new homes, with the greatest preference for this type of heating expressed in the East South Central states, 19%, and in the Mountain and Pacific regions, 16%.

Radiators, which account for 16% of the heating systems being used in new homes, are most popular in New England, 57%, and in the Middle Atlantic states where 43% of the home builders have specified them.

A tabulation of the replies, by regions and by types shows:

Principal Heating System

REGION	Space Heater	—Warm Air— With Blower	—Warm Air— Without Blower	Radiators (Stm. or H. W.)	Radiant Heat*	Other
New England	1%	33%	6%	57%	2%	1%
Middle Atlantic	—	42	9	43	5	1
South Atlantic	16	49	6	16	4	9
East North Central ...	2	63	11	7	13	4
East South Central ...	2	39	19	6	14	20
West North Central ..	2	74	10	7	4	3
West South Central ..	13	25	12	3	20	27
Mountain and Pacific ..	11	44	16	2	15	12
TOTAL U. S.	6%	49%	11%	16%	10%	8%

*Includes radiant heat in floors, ceiling or baseboards.

Gulf Oil to Build Largest "Cat Cracker" at Port Arthur

CONTRACT for the construction of a 60,000 barrel per day fluid catalytic cracking unit has been awarded by the Gulf Oil Corp. to the M. W. Kellogg Co., New York. The plant will be erected at the company's Port Arthur, Texas, refinery and anticipated output will be 20% greater than that of any similar installation currently in operation or under construction.

The new unit will produce a variety of petroleum products, including fuel oils, and, while it will not increase materially the refinery's 230,000 barrels per day production, it will enable the production of an increased amount of higher octane gasoline for military and civilian use. The "cracker" is scheduled for completion during the Summer or Fall of 1951 and will cost an estimated $8 million.

It will be virtually automatic in operation, with the latest design features. The unit will spread over 184,400 sq. ft. of land and at its highest point will approach the height of a 20-story building.

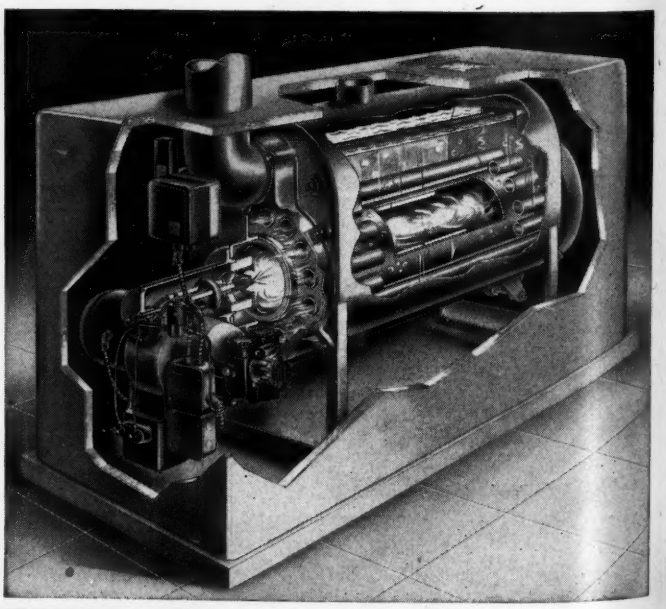
The Bethlehem Crusade-a-therm

Has EVERYTHING You and Your Customers Want in Automatic Heating

Those who have compared and installed this automatic heating plant, say it is the most economical and efficient on the market!

Designed, tested and manufactured to meet all the requirements of the average size home, its superiority over ordinary units is unquestioned. The C-liminator that completely eliminates smoke on start, is standard equipment on the Crusade-a-therm. It, and an electrical solenoid valve which cancels smoky shut-down and after-drip, guarantee trouble-free performance. There's never a trace of the old bugaboo of smoke, soot, and odor.

Owners everywhere report outstanding performance records under the most severe conditions.



Crusade-a-therm
is a "Natural" for Sales and Profits!

BETHLEHEM FOUNDRY & MACHINE COMPANY
BETHLEHEM, PENNSYLVANIA

A few exclusive Bethlehem Crusade-a-therm territory Franchises are still available. Wire or write immediately for full information.

Boost YOUR FALL SALES

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WHISPER QUIETNESS

CERTIFIED INSTALLATION

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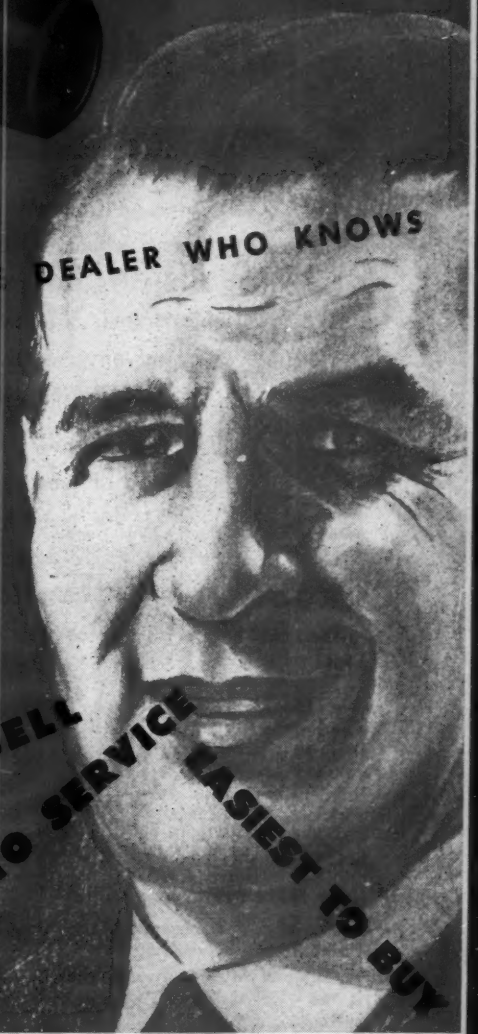
SILENT GLOW

THE DEALER WHO KNOWS



EASIEST TO SELL
EASIEST TO SERVICE
EASIEST TO BUY

Lower first cost, lower service cost, lower fuel cost . . . that's the Silent Glow sales-story that will appeal to the quality buyer, the thrifty buyer . . . and will help you meet the Fall demand with the burner that offers more value than any other regardless of price. Here's a profitable business-building opportunity you can't afford to miss.

Write today for information.

Money back guarantee

This guarantee is backed by the A-A1 rating and reputation of The Silent Glow Oil Burner Corp., a pioneer and leading manufacturer in the oil heating field, with a quarter century background of experience.

Those Who Know Choose
SILENT GLOW OIL BURNERS

THE SILENT GLOW OIL BURNER CORP.

850 Windsor St., Hartford 5, Conn., 1500 So. Western Ave., Chicago 8, Ill.

Send us the complete facts about Silent Glow Oil Burners including prices and your money-back guarantee.

Name _____

Company _____

Street _____

City _____ State _____

Heating Oil Use Gains Shown In Appleton Survey

THE USE OF OIL FOR heating in the Appleton, Wis. City Zone Market increased from 30% last year to 38.7% this year, according to the Third Annual Consumer Buying Habit Study, compiled by the *Appleton Post-Crescent* in cooperation with the Medill School of Journalism, Northwestern University. Total number of heating oil users were shown to be 8,420 this year, compared with 6,420 last year. Coal as a heating fuel dropped from 66.5% to 58.6%, coke decreased 2/10's of a percent to 3.1%, wood increased from 0.1% to 1.0% and gas remained at 0.1%.

A tabulation of these data shows:

Type of Heating Fuel Used

	Percent		*Number*	
	1950	*1949*	*1950*	*1949*
Coal ..	58.6%	66.5%	12,758	14,212
Oil ...	38.7	30.0	8,420	6,420
Coke .	3.1	3.3	677	705
Wood .	1.0	0.1	220	16
Gas ..	0.1	0.1	36	16

Of the 21,781 dwellings reported in the market, 85.2%, or 18,560, are single family houses and 10.8%, or 2,343, are 2-family houses. The balance is divided among 1, 2, 3, 4-family apartment houses. Gravity warm air heating appears to be the most popular type of system, assuming that the term "hot air" refers to that type of heating. In any event, 62.6% use hot air, compared with 64.3% last year, and forced hot air reported by 18.3% in 1949 now is used in 22.6% of all dwellings.

A breakdown of this tabulation reveals:

Type of Heating System

	Percent		*Number*	
	1950	*1949*	*1950*	*1949*
Hot air	62.6%	64.3%	13,635	13,739
Forced hot air	22.6	18.3	4,924	3,903
Hot water	7.7	9.6	1,684	2,046
Space heater	5.5	5.6	1,190	1,192
Steam	1.1	0.8	238	166
Radiant	0.9	..	201	..

NEW MONARCH
AIR MIXING EQUIPMENT

Now you can obtain simple and inexpensive air mixing equipment which will enable you to burn from .60 GPH to 1.20 GPH size nozzles efficiently and with a clean, quiet flame. You can expect from 8% to 10% CO_2 without any trouble, depending on capacity size, if set according to our instructions.

You can now offer the homeowner a good job at reasonable cost. (This equipment is for use where the extra expense of the even more efficient G-74 Combustion Head is too great for the customer.)

The G-74 Combustion Head

The Monarch G-74 Head embodies an entirely new approach to efficient means for intimately mixing air with atomized oil to provide a highly efficient controlled flame.

Note these features:

1. Suitable for capacity sizes from .75 GPH to 2.50 GPH.
2. Simple to install and there is no "guess work" about the settings.
3. Price—Less than the cost of a good fuel unit.

Write for new Catalog D Supplement.

OIL ATOMIZING NOZZLES

Most any nozzle will produce some kind of a fire, but — until you have tried Monarch Stainless Steel Nozzles (of a type with spray characteristics matched to your air mixing equipment) you won't know how good they really can be. Advise make of burner and sketch or accurately describe air mixing head and make test YOURSELF with the series Monarch Nozzles we recommend.

MONARCH MFG. WORKS, INC.
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Omaha Heating Oil Users Total 25,594

THE SIXTH ANNUAL EDITION of the Consumer Analysis of the Greater Omaha Market, prepared by the *Omaha World-Herald,* included a question, "How is your home heated?", with space left to indicate oil, gas or coal and coke as the fuel used.

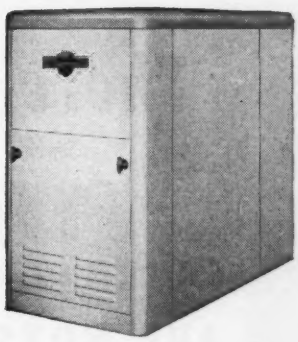
The Omaha, Nebraska and Council Bluffs, Iowa city zones covered in the survey include a total of 95,500 families, 26.8% or 25,594 of which use oil for heating. Gas is used by 28.2% or 25,931 and coal and coke by the largest group, 45% or 42,975 families.

About a year ago a survey released by the *Omaha World-Herald* covered fuel use during the four years since the end of the war. Last year it indicated that out of 91,264 homes, 26.3% or 23,907 used oil for heating, 19.1% or 17,362 used gas and 55% or 49,995 used coal.

F. J. Rudolph, with Perfection Stove Co., Cleveland 4, Ohio, for 31 years, has been named assistant manager of the company's Kansas City, Mo., district, a post similar to that he has held for the past year in Jersey City, N. J. He worked for Standard Oil Co. of Indiana in 1913 when that organization was distributing Perfection products.

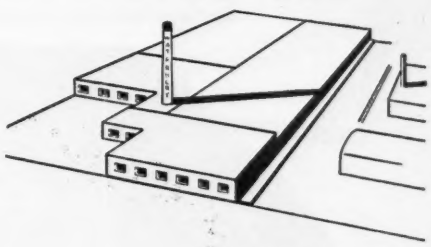
Facing the future with confidence

Confidence in my product



As a Waterbury Dealer, I know that I am offering to my friends the best in home heating . . . a product of true craftsmen whose work will remain, always, a challenge to all others in the field.

Confidence in my factory



As a Waterbury Dealer, I enjoy the close, personal relationships and friendly cooperation that The Waterman-Waterbury Company extends to all their dealers. Their concern for *my* problems is typical of Waterbury.

Confidence in my market

As a Waterbury Dealer, I have the support of a well-rounded, hard-driving merchandising and national advertising program. The name Waterbury is known and trusted . . . it has the acceptance that makes a prospect a sale.

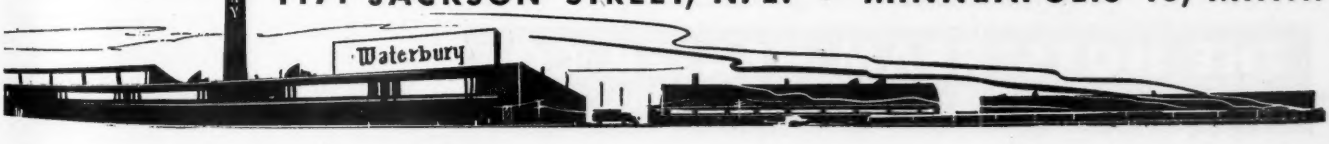
We, of The Waterman-Waterbury Company, find our own measure of success in the future of the Waterbury Dealer and pledge ourselves to the continuing support of his best interests.

Waterbury FURNACES AND AIR CONDITIONERS

OVER 43 YEARS OF WARM AIR HEATING

The Waterman-Waterbury Co.

1171 JACKSON STREET, N. E. • MINNEAPOLIS 13, MINN.



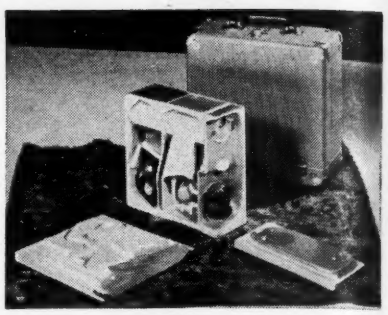
fueloil & oil heat

lowance monthly to his family making up the difference between his government pay and his normal company earnings. This family allowance is limited to 50% of the employee's normal company pay. During the first month of service a qualified employee's group life insurance policy is continued and thereafter Shell will reimburse him for premiums for National Service Life Insurance for the entire time of service up to the amount of his company group life insurance.

Other provisions of the Shell plan allow employees in the Armed Forces to continue to accumulate full credit toward retirement under the company's pension plan and the company continues to pay one half of its normal contributions to the employee's account in the Provident Fund, under which employees deposit up to 10% of their pay and the company matches the amount.

Heil Adds to Heating Distributor Set-Up

FOUR FIRMS have been added to the expanded heating equipment distributor network of The Heil Co., Milwaukee, Wis. The firms are the Reliable Roofing and Sheet Metal Co., Lewiston, Me., headed by Laurea Patry, president; Yankee Oil Co., Springfield, Mass., headed by Philip, Samuel and Albert Schwartz and boasting a fleet of truck tanks and a 60,000 gal. storage plant. In Pittsburgh, the Bailey-Farrell Co., Inc., managed by John O. Gilmore, president, has been appointed, along with the Doyle Oil Co., Providence, R. I. William and Stephen Doyle founded this company in 1935.



Heil Automatic Heat *salesman now are carrying furnaces to the customer! They are using a rubber model of the KF series unit, done by a sculptor. The unbreakable model measures 7½ in. high, 6¾ in. long, and 3 in. wide and is finished in decorator's colors. It is carried in a custom made case of airplane luggage fabric, whose sides fall away when unlatched. In demonstrating the model, Heil salesmen point out the jacket design and air intake and then detach the front and side panels to reveal controls, burner and internal features. Thus, the entire demonstration can be made right in the prospect's living room.*

Monogram Opens Factory Showroom at Philadelphia

A COMBUSTION CHAMBER SHOWROOM has been opened by Monogram Products Co., Inc., at its Philadelphia factory, for the display of Lite-Cast combustion chambers. The showroom has proved beneficial to the company's sales representatives in studying the features of individual types of chambers.

Many dealers also have profited by a visit to Monogram's "Hall of Fame," originated to further the education of oilburner people and make them more conscious of the importance of good and properly sized combustion chambers.

Honeywell Advertising To Foote, Cone & Belding

SELECTION of Foote, Cone and Belding, Chicago, to handle its advertising, effective January 1, 1951, has been announced by Minneapolis-Honeywell Regulator Co., Minneapolis, Minn. The agency has been engaged to handle all

There is only ONE

TRADE MARK REGISTERED

Draft-O-Stat

BAROMETRIC DRAFT CONTROL

AND HOTSTREAM MAKES IT!

OVER ONE MILLION

SUCCESSFUL INSTALLATIONS

New Model "B" (illustrated) now available in 6, 7, 8, 9, 10 and 12 inch sizes. Write for Bulletin.

THE HOTSTREAM HEATER CO.

6925 QUINCY AVENUE • CLEVELAND 4, OHIO

A STAR PERFORMER for Over 25 YEARS

REXOIL

Automatic

OIL BURNER

Any Rexoil dealer will tell you that the star performance of Rexoil Oil Burners has consistently captured wider and more enthusiastic public acceptance. And it's no wonder . . . for Rexoil has *all* the proven points that consumers are quick to recognize . . . longevity, quiet operation, thorough dependability, low-cost performance and pride of ownership. Rexoil is backed by 25 years of engineering "firsts" which, with the latest design features, combine to make Rexoil's superiority felt more and more every day. There's a complete line of Rexoil burners for every heating need.

REIF-REXOIL, INC.

37 Carroll Street **Buffalo 3, N. Y.**

Manufacturers of A Complete Line of Oil Burners, Furnaces and Boilers

ditioning units. Decorative jacket covers have been left off since July 31.

A saving of 30% in steel requirements is foreseen by H. W. Burritt, Eureka Williams president, who pointed out that the steel from two furnace front cover panels was sufficient to build one entire basic furnace jacket. All savings are being accomplished on non-essential features, so that they will have no effect on quality or performance of the heating equipment. "In addition," continued Mr. Burritt, "the move can be counted as anti-inflationary in a period of rising prices, since the cost savings from eliminating the non-functional steel trim will be passed on to the consumer." The decorative features will be available again when the world situation permits.

Perfex Expands in Canada; Gets Good Housekeeping Seal

THE FIRST STEP in an expansion program for its Canadian company, Perfex Controls Ltd., has been taken by Perfex Corp., Milwaukee, Wis., with a new manufacturing plant at Guelph, Ontario. Occupying an area of 18,000 sq. ft., the plant will specialize in the manufacture of automatic controls. E. G. Spall, president and general manager of the Canadian division, whose office now is at Guelph, reveals plans for future expansion to include erection of two new plants of 20,000 sq. ft. each with Guelph as the manufacturing center for the entire division. Sales and service offices will continue in Toronto, with Murray Bowman as vice president in charge of sales. Distribution and service facilities also are maintained in Calgary, Vancouver, Winnipeg.

At the same time it was announced that Perfex "Magic Dial" and other temperature controls have been awarded the Good Housekeeping Guaranty Seal of Approval. The Seal from now on is to be displayed on product packages, in company advertising and on point of sales displays. Provision also will be made for its inclusion in sales literature and mailing pieces, in dealer newspaper and radio advertising.

CROTTY: *the BIG name in steel boilers, presents the*

CROTTY D.B. BOILER

(Dry Base)

NOTICE the clean-cut lines, simplicity and ruggedness of the CROTTY D.B. Boiler.

The illustration shows furnace and clean-out door open to portray ready accessibility to entire heating surface of the boiler, simplifying tube cleaning and combustion chamber inspection. Tubes are shown equipped with spiral baffles, additional aids to complete heat extraction. The door is mounted on adjustable hinges and is equipped with an asbestos sealing ring for gas tight closure.

The exceptionally high crown sheet of this boiler, large furnace volume, and improved combustion chamber design, assure complete and efficient combustion.

All CROTTY D.B. Boilers are designed and constructed in conformity with the standards of the American Society of Mechanical Engineers and the Steel Boiler Institute, under rigid inspection of the Ocean Accident and Guarantee Corporation, Ltd.

Send for complete information NOW!

Crotty Manufacturing Corporation

133-15 35th AVE. FLUSHING, L. I., N. Y.

Keystone Nozzle Changes Name to Sussex Nozzle

SUSSEX NOZZLE CO. is the new name of the company formerly known as Keystone Nozzle Co. O. A. Schwartz, president, announces the company still is located at 358 Sussex Ave., Morristown, N. J., and is continuing production of oilburner nozzles.

Viking Manual Details Duct Estimating Methods

A NEW METHOD of estimating ductwork for domestic warm air installations is presented in a 50-page manual and handbook, prepared by Paul B. Patton, vice president, Viking Mfg. Corp., Cleveland, Ohio. Included in the firm's line of equipment is Flatpak Ductwork, heavy gauge, preformed aluminum ducts, which are shipped knocked-down and nested ten fittings to a carton.

The manual gives costs, Btu delivery, equivalent length and material needed for numerous possible variations of standard ductwork, with data precalculated except for the length of the branch or trunk. When this is determined from blueprints or measurements, all the information for laying out, sizing and estimating its easily figured. Duct installations resulting from this procedure meet current FHA specifications and recom-

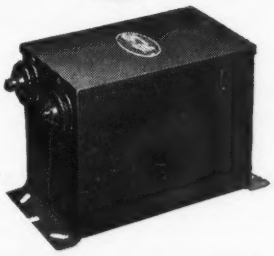
New G-E control provides "double-check" protection against:

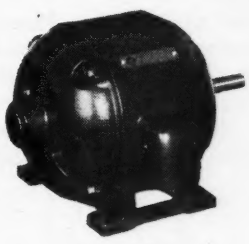
PILOT FAILURE **FLAME FAILURE**
POWER FAILURE **CARBONIZING**
COLD-OIL STARTING

COMPLETE OIL-BURNER PROTECTION . . . that's what you get when you specify General Electric's new photoelectric combustion control. It's a complete, coordinated system including master control unit, phototube holder and electrode holder. Assures positive protection against combustion failure by immediate fuel cut-off. All components of the system are easily removable for inspection and test without disturbing connections. Write for Bulletin GEA-4779: "Electronic Combustion Control for Commercial Oil Burners."

Development of this device is yet another proof that General Electric keeps abreast of commercial-burner needs with dependable electric equipment—including ignition transformers, motors and control. When you order oil burners, ask for complete electric equipment by General Electric. *Apparatus Dept., General Electric Company, Schenectady 5, New York.*

EQUIPMENT FOR COMMERCIAL BURNERS


IGNITION TRANSFORMERS


MOTORS

CONTROL

GENERAL ELECTRIC

730-19

mendations of the National Warm Air Heating and Air Conditioning Association.

Full-page isometric drawings of each of the 24 possible combinations of fittings into branches and runs from heating units to registers and grilles are accompanied by cost figures, based on dealer prices of Flatpak Ductwork. Also shown are Btu deliveries for each separate branch combination. The new estimating procedure is illustrated in the manual by a typical layout of 8 warm air supplies and six returns.

Heil Company Adds to Sales Promotion Forces

ADDITIONS have been made to the personnel and sales promotion forces of Heil Co., Milwaukee 1, Wis., designed to permit the company to continue the steady growth it has experienced since 1901. Robert G. MacDonald has come to Heil as director of industrial relations and a 15 month training program for new employees has been instituted. Designed to give them some insight into engineering, sales and administrative developments, the program will acquaint new employees with every Heil division and prepare them for work in the field.

In the sales promotion department, marketing and sales research has been stepped up, with catalogs now being prepared for distributors. Purpose of these, which are being designed so that each division will have its separate catalog, will be to combine large scale production efficiency with the appeal to the customer to buy from a company he knows. All will include general information on Heil history, reputation, credit rating, organization, advertising and new developments.

CHECK YOUR Eddington NEEDS HERE

- FILTERS
- NOZZLES
- VALVES
- STABILIZERS AIR-CONES
- STRAINERS
- ADAPTORS
- INSPECTION MIRRORS
- SERVICEMAN'S NOZZLE KITS

Complete information yours for the asking.

"Sure I use Eddington FILTERS

Why wouldn't I—they save my time in servicing and they do a better job for the customer."

GREATER FILTER AREA means longer cartridge life

That means fewer call backs, therefore greater customer satisfaction. EDDINGTON oil filters are light weight, sturdily built. Cartridges can be replaced without breaking the oil line. Interchangeable with other makes.

Stock up today or write for literature

EDDINGTON METAL SPECIALTY COMPANY
1050 Czarnecki Street, Eddington, Pa.

Grieco Printing Offers Dealer Mailing Pieces

OIL AND BURNER DEALERS are offered four mailing pieces a year by Grieco Printing Co., Brooklyn 32, N. Y. The pieces, which can be mailed to dealers' customers or prospects, unfold into small booklets entitled "Your Home," with the dealer's company name, address and telephone number appearing directly under the title. In addition, his company name and address appear as a return address on the front of the mailing piece and a message on the back of the folded mailer can be signed by a personal name.

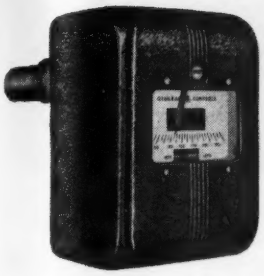
The mailing piece, with imprints, is offered by Grieco in specified quantities to a limited number of dealers in each community. The postage amounts to 1¢ each, with each of the four issues sent automatically to subscribing dealers, imprinted, folded, ready for addressing.

Each issue is printed in two colors with illustrations by a top notch artist and copy composed by men who know the fueloil business, understand the dealer's selling problems. The copy, consequently, is sales-slanted for each prevailing season.

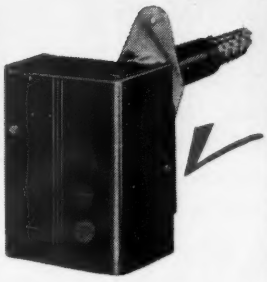
In addition, the company has a group of Christmas cards, cleverly composed and illustrated to carry out a heating and fueloil theme.

New Jersey Standard Military Service Plan

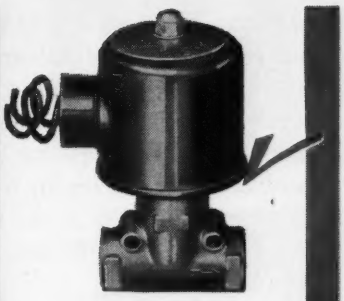
UNDER A MILITARY SERVICE PLAN established by the Standard Oil Co. (N. J.) wives and children of company employees will be protected against financial hardship. In addition to provisions for dependents, a number of benefits



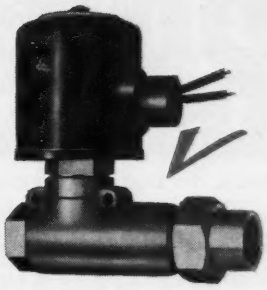
L-32 Immersion Thermostat



R-99 Stack Switch

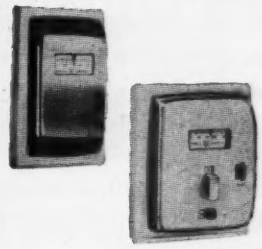


K-21 Magnetic Single Seated Valves



K-10 Magnetic Lever Valve

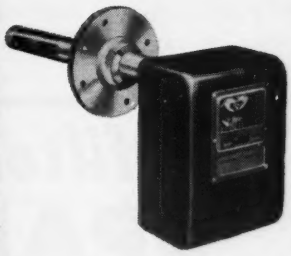
for better HEAT CONTROL check GENERAL CONTROLS



T-70 Standard and T-70T Timer Thermostats

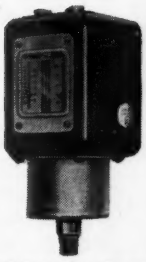
Whatever the *control* problem . . . whether it's *product* control . . . or *process* control . . . in any application where a higher level of operating performance is the goal . . . *automatic* controls more often than not form the solution . . . and in the field of automatic controls . . . there's certain to be a General Control that can be relied upon to do a better job. That's why more and more of the leaders in American Industry are joining in the big swing to General Controls . . . that's why there are so many new voices in the rising chant that,

"for the best in automatic control, it's General Controls."

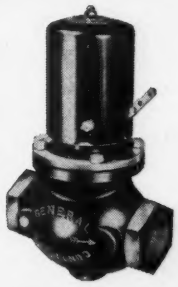


L-34 Combination Fan and Limit Control

L-27 Low Water Cut-Off Valve, Gauge Glass Mounting Type



L-58 Pressure Controls



Hydramotor G-1-7

T-23 Package Set

Controls for Gravity, Gun, Rotary and Atomizing Oil Burner Applications

GENERAL CONTROLS

801 Allen Avenue Glendale 1, California

Manufacturers of Automatic Pressure, Temperature, Level and Flow Controls

FACTORY BRANCHES: Baltimore 5, Birmingham 3, Boston 16, Buffalo 3, Chicago 5, Cincinnati 2, Cleveland 15, Dallas 1, Denver 4, Detroit 21, Glendale 1, Houston 6, Kansas City 2, Minneapolis 2, Newark 6, New York 17, Philadelphia 23, Pittsburgh 22, St. Louis 12, San Francisco 7, Seattle 1, Tulsa 6. DISTRIBUTORS IN PRINCIPAL CITIES

also are available to employees without dependents. The plan guarantees an employee his old job at the end of his military service, or as nearly an equivalent position as possible. The program is similar to one the company instituted shortly after Pearl Harbor, and another program was kept in effect at the end of World War II to allow employees to attend reserve training encampments.

Under the newly announced plan, an employee entering the armed services—by voluntary enlistment, draft or as a member of a reserve force called to active duty—is granted a military leave of absence. Dependents of such an employee will receive monthly payments equal to the difference between the employee's regular company pay and his service pay, with a maximum fixed at one-half the employee's regular company pay.

An employee with more than a year's service, with or without dependents, receives a lump sum payment equal to two months' salary when he enters military service and if vacations cannot be taken prior to entry into service, he also receives his vacation pay. Finally, group insurance may be continued for the first 90 days of military service.

Esso Standard Oil Company, Jersey's principal marketing affiliate, has adopted a similar plan for its employees, and the parent company has recommended consideration of the program by its other domestic affiliates.

Organization of Eureka Williams Engineering Dept. Completed

REORGANIZATION and expansion of the engineering department, Eureka Williams Corp., Bloomington, Ill., recently has been completed. Under the new plan, the department is split into two divisions, research and product development. Formerly the department was separated into Eureka vacuum cleaner and Williams Oil-O-Matic divisions, each operating independently.

Promotions which became effective are H. E. Earl, chief engineer of the Williams Division for the past ten years, to the newly created post of director of research; C. M. Pierson, former staff engineer, becomes director of product development; C. R. Wolter, former liaison engineer between the old divi-

Earl Wolter Pierson

sions, now is assistant director of engineering. W. E. Flanders becomes assistant product engineer and C. R. Waldron, assistant director of research.

Vol-U-Trol Booklet Explains Principle and Application

"COMMON SENSE" Modulation for forced air heating with the Vol-U-Trol modulation system, has been prepared by the Vol-U-Trol Co., St. Paul 9, Minn., to explain the principle of modulated air circulation and to provide a simple method of installation, including the balancing and adjustment of the system.

The Vol-U-Trol modulating blower control is described as consisting of a thermostatic bellows, installed in the warm air plenum, a cable connecting to a damper in the return air duct and a spring to maintain tension on the cable.

A filter for every Oil Burner Service

SPARKLER FUEL OIL FILTER

Model OB-2 actual size

Approved by Underwriters' Laboratories

THREE SIZES OB-2 OB-4 OB-8

You get

- ★ **A nice profit item**
- ★ **Easily stocked refill element. One type filter disc used on all filter sizes.**
- ★ **Reduction in service calls due to clogged nozzle screens.**
- ★ **Customer satisfaction — no burner trouble when filling of tanks stirs up sediment.**

The positive seal prevents by-passing of unfiltered oil, this eliminates trouble due to clogged nozzle screens. All oil that reaches the burner is filtered through the rayon element that removes minute particles down to .002 and any water in the oil. This is particularly important with small size burners used in the average home.

Three sizes—OB-2 for average home size burners. OB-4 for larger burners or unusually dirty tanks. OB-8 has four times the capacity of OB-2.

Order from your jobber

SPARKLER MANUFACTURING CO., Mundelein, Ill.

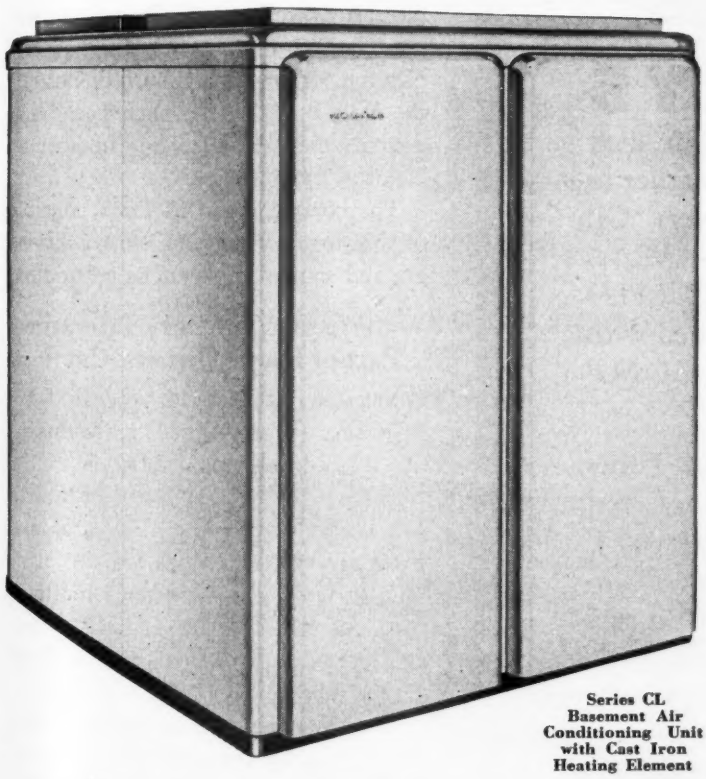
Makers of industrial filters for the Food, Chemical, and Oil Processing industries for over a quarter of a century.

Member, Oil Heat Institute of America

MONCRIEF DEALERS

can say *Yes*

. . . to practically ANY cast iron gas-fired heating specification



Series CL Basement Air Conditioning Unit with Cast Iron Heating Element

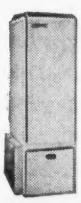
. . . Be the dealer that says YES to the architect, builder or homeowner who specifies gas-fired heating equipment with cast iron heating elements.

. . . Be the dealer who sells units of the type and size that will fit practically any specification for both gravity and forced air heating installations.

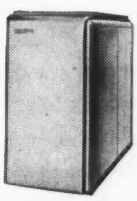
Moncrief dealers not only say, "YES—we have just the unit you require," but also say with unreserved confidence that, "when you buy a Moncrief, there is no competitive furnace that has the 'Years Ahead,' outstanding features which are built into all Moncrief gas-fired heating units with cast iron heating elements."

So—be a Moncrief dealer and you can say "YES," because you'll sell the line that is most complete—the line with types and sizes that range from 50,000 B.T.U. to 200,000 B.T.U. input.

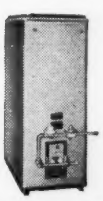
Series L Gas-Fired Steel Air Conditioning Unit.



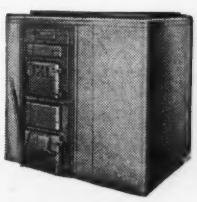
Series U Gas-Fired, Steel Utility Air Conditioning Unit.



Series P Gun, Oil-Fired Air Conditioning Unit. Steel heating element.



Series W Gas-Fired Gravity Furnace Available with Steel or Cast Iron Heating Element.



Series AC-F Coal-Fired Air Conditioning Unit. Steel Heating Element.

Series C Coal-Fired, Cast Iron Furnace.

No. UC-95-E Gas Counterflow Unit, for Floor Slab, Perimeter Heating.

No. VUC-75-E Oil Counterflow Unit, for Floor Slab, Perimeter Heating.

THE HENRY FURNACE COMPANY • *Medina, Ohio*

HEATING AND AIR CONDITIONING UNITS — MONCRIEF SINCE 1895 — FURNACE PIPE AND FITTINGS

fueloil & oil heat

The bellows adjusts the position of the damper, depending on plenum temperatures, to permit a greater or lesser amount of air to be circulated.

The opening portion of the book discusses in some detail facts about air heating and modulation and incorporates a copy of the National Warm Air Heating and Air Conditioning Association booklet, "Seven Steps to Indoor Comfort." Concluding pages of the booklet contain installation steps and diagrams. Copies are available upon written request to the company.

National Radiator Building Altoona Sheet Metal Plant

SHEET METAL OPERATIONS of National Radiator Co., Johnstown, Pa., including construction of non-ferrous convectors and baseboard radiators, have outgrown present facilities, with the result that a new million-dollar plant is to be built in Altoona, Pa., scheduled for completion in December and operation the first of the year.

Transfer of some of the sheet metal operations to the new location will streamline production facilities and make room for new products at the Johnstown plants. The new plant initially will employ about 300 people and although this will mean moving some of the product being made at the company's Century plant, it is planned to equip this plant for production on an independent operating basis and absorb present production personnel on new operations wherever possible.

The Altoona one-story mill type structure will provide 120,000 sq. ft. of floor space and is to be built on a 15-acre site to permit the addition of similar units when conditions warrant.

Penn Electric's Boston Office Moves to Newton

THE BOSTON district office of the Penn Electric Switch Co., Goshen, Ind., has been moved to 313 Washington St., Newton 58, Mass., a suburb of Boston. A. W. Barr, district manager, announces the new telephone number as Decatur 2-9540.

The complete line of Penn controls for heating, refrigeration, air conditioning and similar applications is handled.

Waterman-Waterbury Literature Part of Home Owners' Catalogs

CONSUMER LITERATURE prepared by Waterman-Waterbury Co., Minneapolis 13, Minn., is included in Home Owners' Catalogs, published by the F. W. Dodge Corp. The Catalog is distributed to those families who are planning to build a quality home for their own use within twelve months. These are located and verified by a staff of Dodge reporters.

The Waterman-Waterbury catalog opens with an introduction to explain how important is the planning of the right heating system for a home. It then devotes detailed explanations to gravity and forced warm air heating systems, panel and perimeter heating. For each type there is included a photograph of the Waterman-Waterbury furnace that has been developed for it.

Riddle Winner In Winkler's Big 10 Basketball Contest

CARL L. RIDDLE, Norristown, Pa., who turned in $100,000 worth of Winkler heating equipment orders during the last 26 days of a five-month contest, won first place over 39 other district sales man-

Fulflo FILTERS
REG U S PAT OFF

60 DAYS

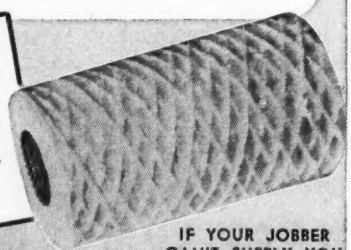
You have only about sixty days before cold weather to make sure that every Oil Burner you sell or service is equipped with a FULFLO FILTER and provided with a new HONEYCOMB FILTER TUBE.

FOUR SIZES . . from bungalow to office building.

While your profit on the Filters and Tubes is gratifying it is of more importance that new HONEYCOMB FILTER TUBES will guarantee your customers a winter of maximum home heating satisfaction, while you yourself will experience a minimum of costly and annoying service calls.

Fulflo Filters lead all others in sales because dealers everywhere have learned that they lead all others in performance!

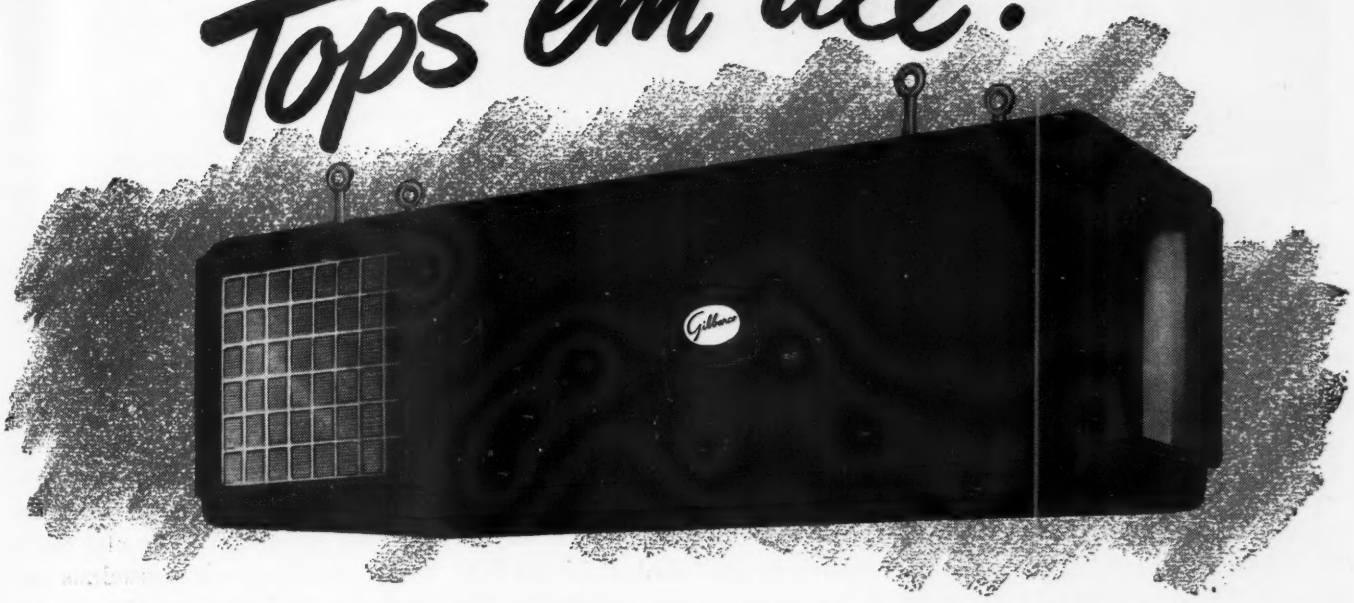
HONEYCOMB FILTER TUBES
Engineered for Oil-Burner Service. Precision depth filteration. Every drop of oil finely filtered again and again. Accept no substitute.



IF YOUR JOBBER CAN'T SUPPLY YOU WRITE US.

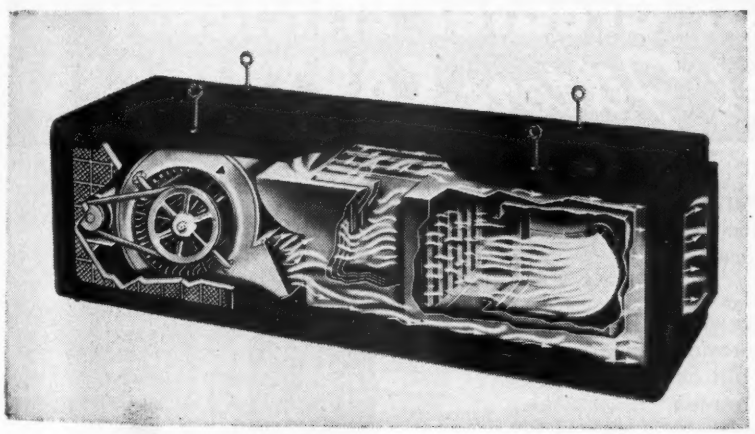
COMMERCIAL FILTERS CORPORATION
BOSTON 27, MASSACHUSETTS

Tops 'em all!

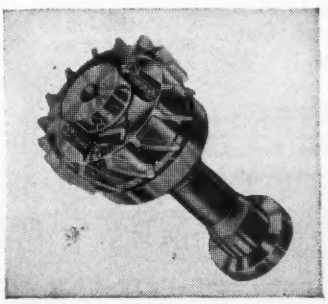


THE GILBARCO SUSPENDED FURNACE

saves space, fuel and operating costs for added sales appeal!



COUNTERFLOW HEAT TRANSFER — a fuel-saving feature of the Gilbarco suspended unit. Hot combustion gases move in opposite direction to flow of heated air, giving maximum transfer of heat through all parts of furnace. The unit hangs from ceiling with four steel eye-bolt hangers. Completely out of the way for 100% use of valuable floor space. Comes in 100,000, 150,000 and 200,000 BTU per hour sizes.



FAMOUS ECONOMY CLUTCH — All Gilbarco Suspended Unit Oil Burners are equipped with this exclusive fuel-saving feature that reduces heat-wasting soot, increases efficiency.

Customers want the Gilbarco Oil-Fired Suspended Furnace because of the tremendous savings it affords in space, fuel and operating costs.

Dealers acclaim the quick-and-easy low-cost installation of this outstanding suspended unit. You merely install oil piping and carry wiring to the power outlet and thermostat. The furnace is completely assembled at the factory, with burner already mounted.

Ideal for service stations, garages, stores, homes! It's the new, economical answer to those tough heating and space problems.

A few valuable franchises are now available west of the Appalachians. Write us today and get all the facts on this profitable, fast-selling line.

Gilbarco

THE OIL BURNER WITH THE ECONOMY CLUTCH

Gilbert & Barker Manufacturing Company
West Springfield, Mass.—Toronto, Canada

CONVERSION AND REPLACEMENT BURNERS
BOILER BURNER UNITS
WARM AIR CONDITIONERS • INDUSTRIAL BURNERS

Carl Riddle, *with Mrs. Riddle, shown at the wheel of the convertible he won in Winkler's 1950 sales contest. In the background, beaming approval, are Robert C. Hulse, sales promotion manager, originator of the contest; Carl J. Winkler, president; Claude A. Potts, vice president in charge of sales, who made the presentation; Herman E. Winkler, executive vice president and Walter E. Blake, national sales supervisor.*

agers in the competition sponsored by U. S. Machine Corp., Lebanon, Ind. He won a 1950 convertible and a solid gold wrist watch, presented to him in ceremonies at the factory.

The Big 10 Basketball Contest, consisting of four district managers being assigned to each of ten teams, saw the "Purdue" team capture the team title. Distribution of prizes, however, was determined by individual efforts and Riddle's great stretch drive earned him the captaincy of Winkler's 1950 "All-American" sales team. J. O. Williams, Lebanon, was runner-up, with Carl G. Lang, Naperville, Ill.; Ralph W. Kettelkamp, Springfield, Ill., and Glynn L. Coryell, Waltham, Mass., following.

General Controls Adds Four Sales Engineers

FOUR SALES ENGINEERS have been added to its staff by General Controls, Glendale, Calif., manufacturers of automatic pressure, temperature, level and flow controls. The company operates 23 branch offices throughout the country.

William Charles Stringfellow has been added to the Dallas branch office; Hamilton G. Sudler to New York; Earnest F. Bruegel to Philadelphia and R. Roedder to Los Angeles.

Shell Arranges Military Leave Benefits for Employees

EMPLOYEES of the Shell Oil Co., who go on military leave, are assured of financial protection and job security under a plan just inaugurated. The plan covers those employees with dependents primarily, but includes features also for those with no dependents.

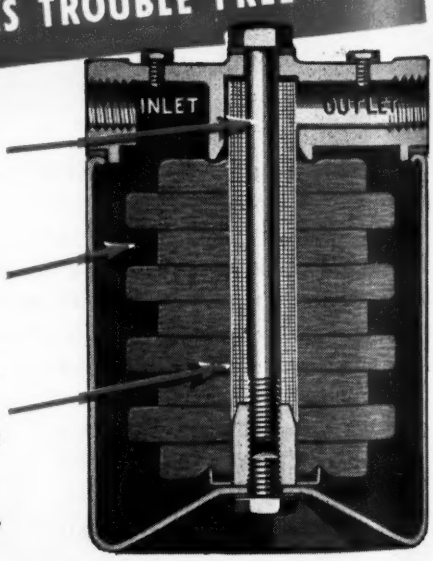
Made retroactive to July 1, the plan gives each qualified employee a lump sum payment equivalent to two months' pay when he enters service and after the second month, the company pays an al-

All Wool Felt for Greater Efficiency
USE ONLY *General Filters* CARTRIDGES

Over a million users of General Fuel Oil Filters are proof of their greater efficiency. To retain peak efficiency, be sure you install a genuine General Filters replacement cartridge at least once each season.

Only General Filters gives you an all-wool cartridge which is impervious to water. Their "step back" design provides far greater surface area and consequently faster dirt absorption. The chemically treated, fine-mesh, wire-screen center core acts as a secondary filter and prevents any lint from getting to the burner nozzle. The uniformity of the felt eliminates any chance of channeling. Designed especially for gravity or pressure fuel oil burners, only GENERAL Filters gives you all these features. Get the best—they cost no more.

DOUBLE FILTER SECTION ASSURES TROUBLE FREE FLOW



SINGLE CENTER BOLT FOR QUICK CARTRIDGE REPLACEMENT

STEP BACK CONSTRUCTION PROVIDES GREATER SURFACE AREA

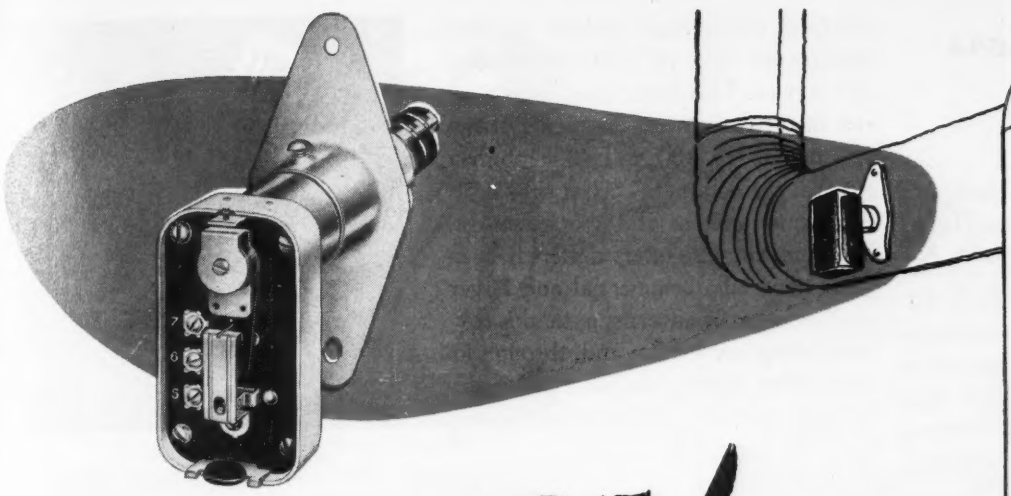
FINE MESH CHEMICALLY TREATED SCREEN ACTS AS SECONDARY FILTER

GENERAL FILTERS SAYS:

Do your customers a favor—see that they have a genuine replacement cartridge at least once each heating season.

GENERAL FILTERS INCORPORATED **GENERAL FUEL OIL FILTERS** 12890 WESTWOOD AVE. DETROIT 23, MICHIGAN

CANADIAN FACTORY BRANCH: CANADIAN GENERAL FILTERS, LTD., 2679 DANFORTH AVE., TORONTO

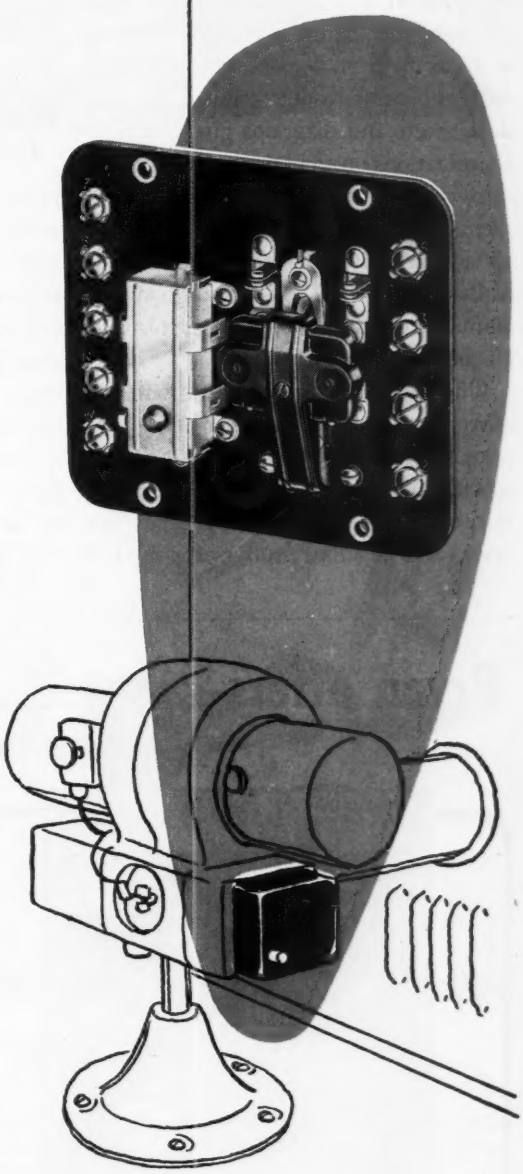


Line drawing illustrates typical location of the new Penn two-piece unit. Wiring from stack combustion control to burner mounted relay is low voltage . . . eliminates conduit, installation is easier and more economical.

IT'S HERE!

the first practical and efficient BURNER-MOUNTED PRIMARY RELAY

saves installation time . . . saves money



Now, you can have an oil burner-mounted relay . . . a relay that brings you a step closer to a *completely packaged heating unit.* And it gives you many advantages never before available!

In this PENN two-piece stack control, the primary relay is an integral part of the oil burner . . . *completely wired* for you at the factory. The second unit is a simplified combustion control requiring *only low voltage* wiring.

Result? *Much easier* hook-up because *all* line voltage wiring (except for power supply) is done for you at the factory . . . *you save time, material and money.* In addition, the relay is wired correctly at all times . . . eliminates costly service calls due to improper or faulty wiring.

And PENN costs no more than ordinary stack controls. Leading oil burner manufacturers are incorporating this *new, better* control into their burners. Ask *your* manufacturer for it . . . or, for additional information write **Penn Electric Switch Co., Goshen, Indiana.** Export Division: 13 East 40th Street, New York 16, U.S.A. In Canada: Penn Controls, Ltd., Toronto, Ontario.

PENN

AUTOMATIC CONTROLS

FOR HEATING, REFRIGERATION, AIR CONDITIONING, PUMPS, AIR COMPRESSORS, ENGINES, GAS RANGES

fueloil & oil heat

Manufacturers Activities

Carlin Prepares Installation Manual; Dealer Sales Helps

AN INSTALLATION and service instruction manual for Carlin and U. S. oilburners has been prepared by the Carlin Co., Wethersfield, Conn. Covered in the manual is a complete line of high pressure atomizing oilburners, ranging in capacity from 1 to 14 gph, with and without combustion heads. Detailed data sheets and diagrams give complete specifications on the burners, with other drawings and diagrams included to supplement the written installation and service instructions. Data sheets and installation bulletins are bound in the manual for fuel units and controls that are used on the burners.

Offered in limited quantities without charge are a series of sales helps prepared for Carlin dealers. In addition to specification sheets, with all necessary information about each burner except price, and envelope stuffers for models 400 and 400S, these include decalcomanias, size 8" x 10" and a newspaper mat service. This latter consists of a series of advertisements in various sizes, also on models 400 and 400S, with a space at the bottom of each for the dealer's name, address and short message. The company also offers dealers help in preparing radio commercial and larger sized newspaper advertising than is covered in the mat service and, through its advertising agency, cooperation in designing, printing and contracting for space for car cards.

Vent-Rite Automatic Air Vents In Two Dozen Size Display Case

VENT-RITE #10 automatic air vents, recently announced by Anderson Products, Inc., Cambridge, Mass., are boxed attractively in individual red and black cartons, and now are offered in a larger display carton holding two dozen boxed vents. The carton is suitable for shelf, counter or window display.

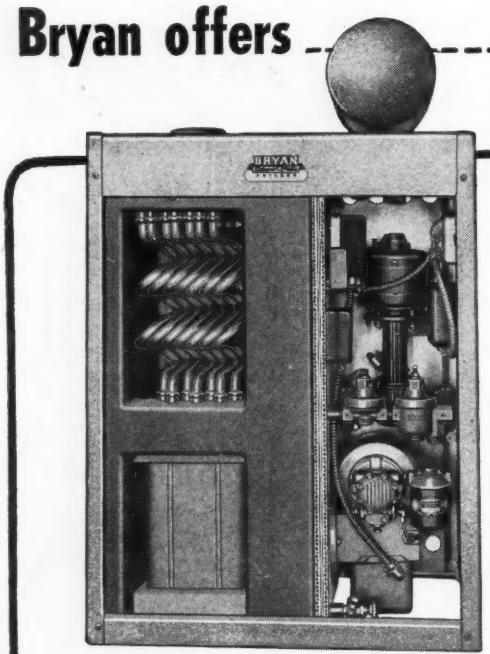
Both the individual and the two dozen size cartons have smart, modern design, are two-color printed and feature "Finger-Tip Control," which distinguishes

the #10 vent. Attractive packaging, designed to boost sales, is common to the whole line of Vent Rite vacuum and non-vacuum vents.

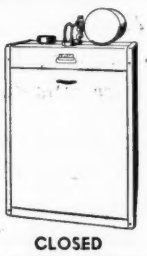
Oil-O-Matic Eliminates Decorative Jacket Covers

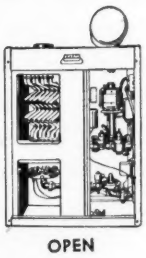
IN A VOLUNTARY MOVE to help meet increased demand without increasing steel requirements during the nation's rearmament program, the Eureka Williams Corp., Bloomington, Ill., has commenced the elimination of non-essential steel decorative features from Oil-O-Matic boiler-burner and winter air con-

Bryan offers ---- A COMPLETELY PACKAGED BOILER FOR radiant heat in Small Homes and Apartments



- Light in weight.
- High efficiency copper tubes.
- Measuring but 31" wide, 41" high and 18" deep, it delivers 70,000 BTU's. Also 100,000 BTU size available.
- Green hammerloid finish.
- Oil or gas firing optional.
- Easily installed—all wiring, piping and controls assembled at factory —ready for use after connecting to water, mains, electricity and fuel lines.


CLOSED


OPEN

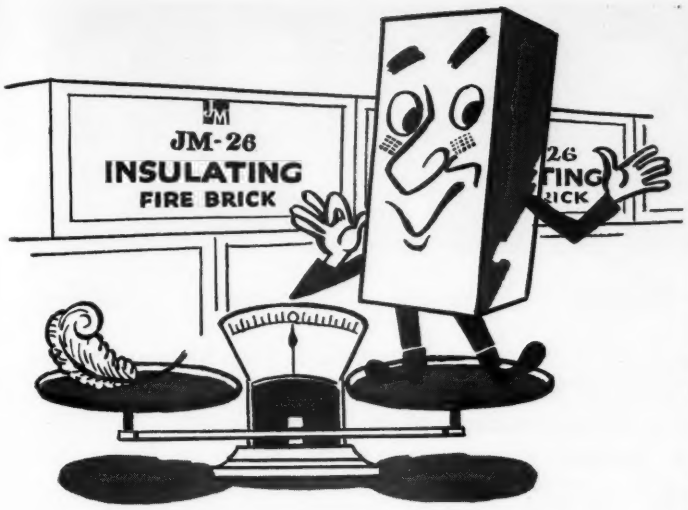
OIL OR GAS FIRED

Send for complete information

Built to A.S.M.E. Specifications

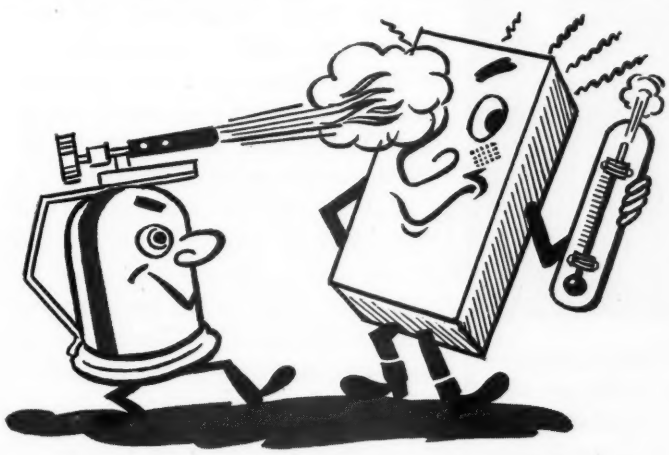
BRYAN STEAM CORP. 190 Chili Pike Peru, Indiana

BRYAN Copper Tube BOILERS SINCE 1924



I'm a light-weight insulation . . .

installed as quick as a wink;



get the firebox hot in a hurry . . .

and cost a lot less than you think!

That's why Johns-Manville Insulating Fire Brick is a profit maker for you . . . a money saver for your customers

Oil burner men everywhere acclaim the ease with which square, round, oval or pear-shaped fireboxes can be built with light-weight J-M Insulating Fire Brick. Any desired cut or shape can be readily made with an ordinary hacksaw blade.

Then, for firm tight joints J-M Insulating Fire Brick is dipped into J-M 1626 Bonding Cement and rubbed into place. Spaces behind are filled with J-M Dobfill and the job is done.

Your customers benefit, too—Laboratory tests prove that J-M Insulating Fire Brick saves up to 10¢ on every dollar spent for fuel. That's because this brick provides the firebox with a skin-deep curtain of white-heat intensity within seconds. This speed in reaching peak operating efficiency does away with wasteful fuel burning required to heat up dense fire brick.

Use of J-M Insulating Fire Brick also results in far less soot, smoke and odor . . . in addition to much quieter oil burner operation.

Recommended J-M Insulating Fire Brick for oil burner fireboxes: JM-20, JM-23, JM-26, JM-28—and for industrial use, the new JM-3000. For further information see your J-M Distributor or write Johns-Manville, Box 290, New York 16, New York. In Canada, 199 Bay Street, Toronto, Ontario.

JOHNS-MANVILLE JM PRODUCTS

Johns-Manville INSULATING FIRE BRICK

"For Skin Heat in Seconds" in Fireboxes

national and trade advertising for the company's heating, commercial, aeronautical and export divisions.

Advertising of the Brown Instrument Div., the Micro-Switch Div. and the company's subsidiary in Toronto, Canada, all will continue to be handled by their present advertising agencies.

McClure Mackay Vaughn Meiners LeMoine

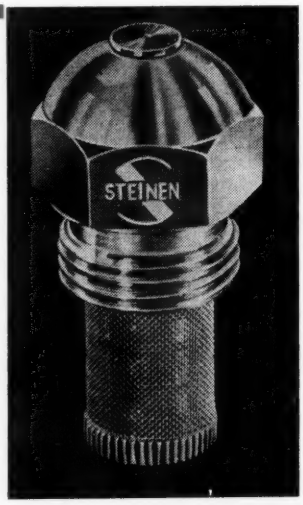
Timken Names District Mgrs.; Plans Canadian Product Display

TO KEEP PACE with sales development and expansion, five new district sales managers have been named by the Timken Silent Automatic Div., Jackson, Mich. They are Thomas McClure, Jr., northern Indiana; R. J. Mackay, western New York; H. J. Vaughn, western Pennsylvania; John Meiners, Jr., southern Indiana and Kentucky; E. S. LeMoine, eastern Canada.

A major display of Timken Silent Automatic oilheating equipment was installed for the Canadian National Exhibition, Toronto, August 25 through September 9. The display, consisting of a permanent 20 by 30 ft. cottage, to be located in Devonshire Court, features models of an oil boiler, oil furnace, conversion burner models and the company's Twin-Boiler Demonstrator. One of these boilers is fired with a conventional oilburner, the other with a Timken Wall-Flame burner. Under-fire demonstrations were conducted.

This was the first display of this kind undertaken by Timken in Canada, and is expected to become an annual activity. All models shown were manufactured in Canada, three Toronto dealers supplying personnel for the display.

STEINEN
Mirror Finish NOZZLE
Assures Better Burner Performance



1. Mirror finish causes heat deflection and prevents carbon collection.
2. Micro-atomized spray for intensified heat.
3. Uniform shutoff.
4. Nozzles are interchangeable for different types of burners.
5. Each nozzle individually tested to assure accuracy of rated capacity.
6. Made in hollow and solid spray types.

Metal stampings and screw machine products of all kinds such as air bands, air shutters, bushings, adapters, etc. made to your specifications.

NOZZLE AND TOOL KIT

A real "must" for every installation and service man. Heavy steel box contains a metal tray that holds 22 nozzles in plastic containers, 3 adapters, a vial of additional strainers and one of cleaning sticks. Tool compartment equipped with one ¼" MPT pressure gage with ⅛" adapter, one offset wrench, ⅝" and ¾"; one screw driver, one nozzle brush, one nozzle jig. Kits can also be supplied with any combination of above items.

NOZZLE KIT

Contains

60 Nozzles
4 Adapters
Nozzle Jig
Light Weight
Metal Tray

WILLIAM STEINEN MFG. CO.

43 Bruen Street • Newark 5, N. J.

STEINEN *THE SEAL OF QUALITY PRODUCTS*

Sid Harvey Opens Own Building in Jamaica, N. Y.

ON SEPTEMBER 1 Sid Harvey, Inc., Valley Stream, N. Y., opened a new building at 139-29 Queens Blvd., Jamaica, N. Y., on the opposite side of the street from its old store. The new location is four times the size of the old store, built to Sid Harvey's specifications. Entrances are on Queens Blvd. and also on 139th St. in the rear of the store, where parking space for trucks and cars is provided.

The opening was celebrated by a "house party," with refreshments and souvenirs for everybody.

Perfection Increases Use Of Transit Advertising

EXPANSION of its street car and bus advertising has been announced by Perfection Stove Co., Cleveland 4, Ohio. At present, 40 of the city's buses and street cars on four main lines are carrying dash cards featuring Superfex furnaces. Cards are in three colors, two of

DECISION !

Fast thinking, good judgment and DECISION make the big gains on the football field.

The same formula can be applied to your fuel oil delivery operation THIS WINTER.

VENTALARM Signal offers the means for big gains in your PROFIT situation right now. To bring about these gains requires only your analysis and ACTION. A thousand Supply Houses are ready to supply your VENTALARM Signal needs.

OVER 2,000,000 NOW IN USE.

ALL VENT SIZES
The LC model VENTALARM Signal is easily installed on old tanks. A quick compression fitting with bayonette lock eliminates any pipe threading. Takes only 15 to 20 minutes.

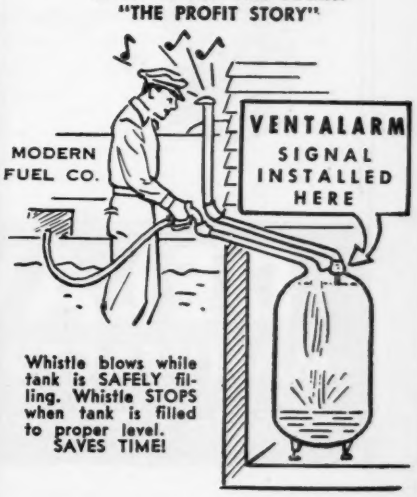
VENTALARM®
WHISTLING TANK FILL SIGNAL

SCULLY SIGNAL COMPANY, 76 First Street, Cambridge 41, Mass.
Canadian Licensee, EMPIRE BRASS MFG. CO., LTD., London, Ontario

EQUIP YOUR OLD FUEL ACCOUNTS!

SAVE 15% - 30% DELIVERY TIME

Write for new free booklet "THE PROFIT STORY"



Whistle blows while tank is SAFELY filling. Whistle STOPS when tank is filled to proper level. SAVES TIME!

DRIVER STAYS OUT OF THE HOME!

which are "Day-Glo" fluorescent colors. The schedule is to extend 13 weeks.

Perfection's dealers are offered a 50-50 deal to tie-in with company transit advertising and eight already have signed up for a four week trial on six car and bus lines. Half of the cost will be borne by the dealer, the other half by Perfection. The dealer dash cards will identify the dealer, who will have an option to continue for the entire 13-week period.

Transit advertising on this basis is available to Superfex dealers in all cities which make use of this medium.

A. Y. McDonald Opens Branch in Spencer, Iowa

ON AUGUST 11 an open house and get together was held in the new branch in Spencer, Iowa, opened by the A. Y. McDonald Mfg. Co., Dubuque, Iowa. The company manufactures a line of pump and water systems, brass goods, cast iron specialties and oil equipment and through 15 branches handles plumbing, heating and building supplies as wholesale distributors.

Robert Storm has been moved to Spencer to act as Resident Manager of the new branch, supervised by R. W. Volkert, manager of the Sioux City zone. John M. McDonald, Jr., executive vice president in charge of branch house operations assumes over-all charge of the Spencer office.

A recent meeting *of the Advisory Board, U. S. Radiator Corp., Detroit, held in New York City. Left to right: George Hickman, manager, Boston branch; D. E. Welsh, manager, Philadelphia branch; R. K. Milward, manager, Detroit branch; J. R. Knox, general manager of sales; W. J. Peoples, chairman of the board and president; M. L. Judd, merchandising manager; T. R. Flanagan, manager, New York branch and A. F. Westerfield, vice president.*

National Radiator Opens Pacific Branch Sales Office

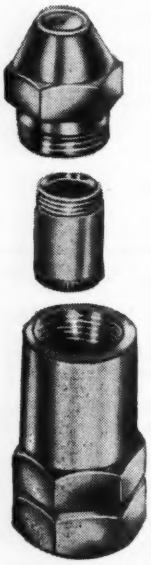
A PACIFIC BRANCH SALES OFFICE has been opened by National Radiator Co., Johnstown, Pa., at 681 Market St., San Francisco, with Robert E. Daly as branch manager. The new office will sell the National line of boilers, radiators and heating accessories in California, Oregon, Washington, Nevada, Idaho and Utah.

Mr. Daly, the manager, has been northwest sales representative in Seattle for the past 18 months. Herbert Van Kuran has joined the staff to succeed Mr. Daly in Seattle, representing the company in the northwestern states as well as in Alaska.

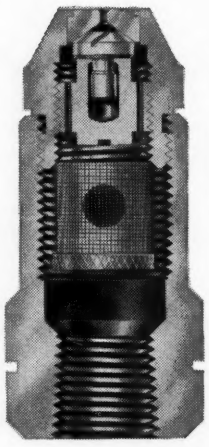
Gorton Heating Announces New Bulletin No. 118

BULLETIN NO. 118 on Gorton vapor equalizing valves and air eliminators, together with current Net Trade Price Sheet No. 50, has been announced by Gorton Heating Corp., Cranford, N. J. The literature, which is being distributed to the trade, gives sizes, capacities and other technical data for five sizes of equalizing valves for radiators and two sizes of air eliminators for basement mains. Net trade prices are included.

For the Best Replacement Nozzles USE DELAVAN



For better performance, greater customer satisfaction, replace old nozzles now with new Delavan nozzles. Delavan's advanced design and precision engineering assure trouble-free, efficient performance. Let Delavan cut down your service headaches.



WRITE FOR CONDENSED CATALOG 347B

DELAVAN MANUFACTURING CO.
3009 SIXTH AVE., DES MOINES 13, IOWA

OHI

Here is an outstanding favorite in the Mueller Climatrol oil-fired line: The Type 209 Vertical Winter Air Conditioner; efficient thermodynamic heat exchanger; fuel-thrifty vaporizing or pressure-atomizing burners.

Mueller Climatrol

fuel-thrifty oil equipment

the line with the "makes 'em want to buy" features

All over, Mueller customers are enjoying increased sales and profits because they have the line people want to buy. Yes! Mueller Climatrol is sought, specified and accepted because:

- It's backed by strong national advertising in leading magazines and newspapers.
- It's a complete line, with sizes and types for every home, any heating system.
- It's quality designed and built — for trouble-free, economical operation and lasting satisfaction.

You will be ahead, too, if you install Mueller Climatrol equipment. You'll find that Mueller Climatrol is easier to sell, easier to install, requires less service, and gives your customers what they want — *fuel-thrifty home comfort.*

Get complete details now so you will be ready for the spring selling season. Write today for convincing facts about the complete line of Mueller Climatrol oil-fired equipment. *L. J. Mueller Furnace Company, 2196 W. Oklahoma Avenue, Milwaukee 15, Wisconsin.*

MUELLER — Climatrol

93rd Anniversary

REG. U.S. PAT. OFF.

fueloil & oil heat

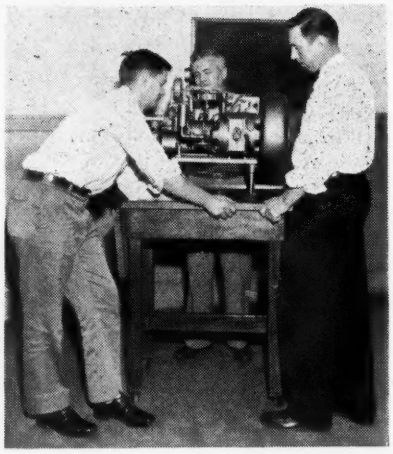
Grant Wilson Catalog On Asbestos and Insulation

AN 8-PAGE CATALOG, prepared by Grant Wilson, Inc., Chicago 4, Ill., for distribution to the wholesale trade, covers the full range of standard asbestos and insulating products used in the heating, ventilating and air conditioning industry. Punched for ring binders, the catalog measures 8½ x 11" and may be included in sales books. Its front page has a cross-indexed table of contents.

Catalog No. 2350 was prepared to answer the frequent questions on what does the product look like, where is it used and what service will it give? The back page is devoted to informative data tables, which have been mentioned in the reading copy of the catalog.

Oil-O-Matic Host to 7000th Student at Service School

ROBERT L. GRAY, Bar Harbor, Me., recently became the 7000th student to attend the installation and service school, held at its Bloomington, Ill., factory by Williams Oil-O-Matic Division. The school, conducted for the last 28 years, has been attended by students from every state in the nation.



Robert L. Gray, *left, is attentive while Ken Johnson, director of training, and F. O. Robison, manager, national service division, demonstrate one of the first Oil-O-Matic burners made in 1923, the low pressure model G.*

Primarily, the course covers oilburner installation and service, but students also are informed of latest engineering developments. Particular emphasis is placed on correct heating units to fit different types of homes. Proper methods of adjusting burners to local weather conditions for maximum efficiency and economy also are stressed.

Field Has Rule-of-Thumb Draft Adjusting Method

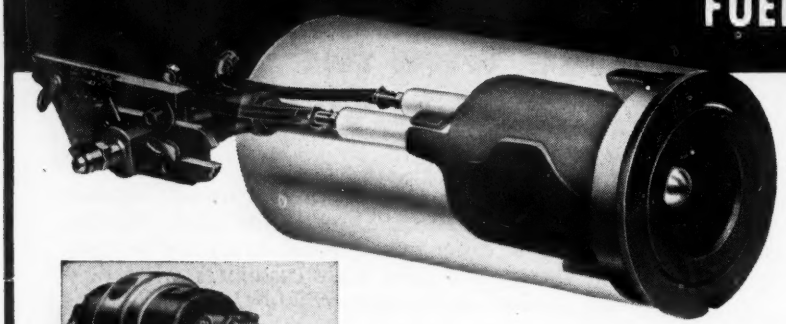
WHEN DRAFT GAUGES are not available, Field Control Div., Mendota, Ill., manufacturers of the Field barometric draft controls, has announced a rule-of-thumb method for adjusting the draft setting on type "M" models.

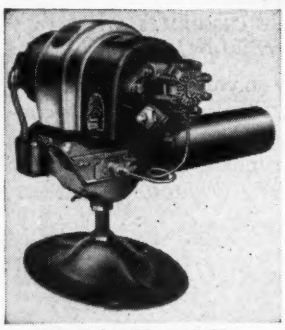
A scale of weight adjustments allows the installer to adjust the control for any of several draft readings. The method is not represented as exact, nor will it be as accurate as when draft gauges are used, but it is described as an effective and time-saving way when the adjustment must be made without the gauges. Sheets describing the method are to be made available through jobbers.

◈

OWENS-CORNING FIBERGLAS CORP., Toledo 1, Ohio, offers a 16-page booklet describing all forms of Fiberglas thermal insulations. Included are data on thermal conductivity and sound absorption properties, with numerous photographs showing applications. The photographs illustrate techniques in securing or applying different types of Fiberglas insulation.

MORE HEAT from LESS OIL with CENTURY'S
FUEL-SAVING FIRING HEAD





Models: 01 and 02

Home owners want its economy when they buy Oil Heating Equipment

The new CENTURY adjustable Firing Head is designed to deliver maximum heat . . . efficiently! Positive control of primary and secondary air provides a perfect fuel-and-air mixture to give clean, complete combustion from all types of home heating oils including the newer catalytic fuel oil that is so high in heat units . . . but, ordinarily, so hard to burn.

CENTURY'S new fuel-saving Firing Head is standard equipment on CENTURY Winter Air-Conditioners and Boilers as well as on Conversion Burners up to 5 G.P.H. capacity.

It's easy to Sell these Advantages!

- Fuel economy through better combustion — cleaner fire.
- Easy adjustment for any draft condition.
- Fewer Service Calls.
- Burns all types of domestic heating oil.

Write today for literature . . . or ask to have a salesman call

Start now to Profit with CENTURY'S Complete Line of Automatic Heating Equipment

CENTURY Winter Air-Conditioners (85,000 — 380,000 BTU — Utility and Basement Models), Boiler Burner Units (380 — 740 sq. ft. of radiation); Convertible Winter Air-Conditioners (60,000 — 180,000 BTU — Gas Burner, Gun Burner, Vaporizing Burner); Oil-Fired Conversion Burners (¾ — 20 G.P.H.), Gas Conversion Burners (87,000 — 250,000 BTU).

CENTURY ENGINEERING CORPORATION
MAIN OFFICE & FACTORY • CEDAR RAPIDS, IOWA

A sensational new development for you

...to help you capitalize on the NEW market for C-A-C Furnace installations and conversion jobs

"Comfort-Air" Circulator

LAU

***C-A-C . . . 8000 Series**

NEW . . . and truly amazing Lau Blower-Filter Package Units . . . in complete size ranges to meet every need. Large units 8096 - 8106 - 8126 and 8124 are compact . . . quiet, efficient . . . they contain two over-size air filters.

Profitable for You . . .

Competitively Low Priced!

Unit 8070 (at left) is the biggest value on the market for a COMPLETE Blower-Filter Unit . . . for conversion or new furnace installations. Installation is extremely simple.

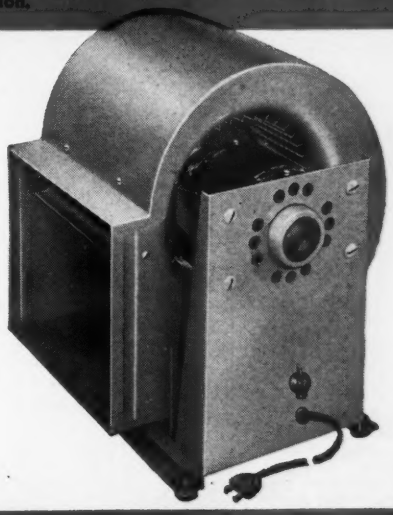
***C-A-C Means:** these units are built for Continuous Air Circulation. Write for full information.

the new LAU direct-drive A7DD

double-inlet blower—does the job!

the A7DD Blower Unit for C-A-C incorporates a direct drive 7½" double inlet blower. The motor is built directly INTO the unit. Fingertip control gives infinite speed range for C-A-C adjustment. No belt or pulley. Large, efficient over-size filter. Complete in ONE package with blower and motor ASSEMBLED into the 8070 cabinet. This one size fills hundreds of applications.

ASK ABOUT THESE C-A-C UNITS. Write us or see your jobber. Lau has a full range of C-A-C units and other Furnace Blower-Package units with 15"-18"-22" and 25" blowers.



World's Largest Manufacturer of Warm Air Furnace Blowers

MEMBER NATIONAL WARM AIR HEATING AND AIR CONDITIONING ASSOCIATION INDOOR COMFORT

THE LAU BLOWER COMPANY

Dayton 7, Ohio

WRITE DEPT. "O" FOR FULL INFORMATION

Industry Groups

Activities of local and national industry associations are reported monthly in this department. Secretaries are invited to send reports of their Groups' activities to reach the editor by the 18th.

Midwestern Old Timers Frolic at Gol-Fun Party

JULY 27 was the date for the annual Gol-Fun party, sponsored by and for Midwestern Old Timers, held at the Forest Hills Country Club, Rockford, Ill. This year's gathering was highlighted by each of the forty Old Timers present being awarded a prize. These included two cups, one for low gross golf score won by "Sec" Howard Maccubbin—the "Bill Kemp" Memorial Cup, donated by Sundstrand Machine Tool Co. The other cup, the Annual Old Timers' Handicap Prize, was won by Charlie Bendix. To be retained the cup has to be won three times. So far, the names of Clarence Pullum, Bill Klockau and Charlie Bendix have been inscribed.

The yearly door-prize, a used swinging door from a traditional Chic Sales' creation, was captured by Ed Groeble, a 1919 variety of Old Timer. National Chairman Jim Owens acted as Master of Ceremonies after the dinner and supervised the prize awards. The committee for arrangements included Bendix, regional chairman, "Chuck" Lang, Howard Maccubbin and Charlie Cochran.

By popular vote, Racine, Wis., was selected as the site for next year's party, with Pres Crewe promising a good time and the same perfect weather these outings have enjoyed.

NPA Holds 48th Annual Meeting September 13 at Atlantic City

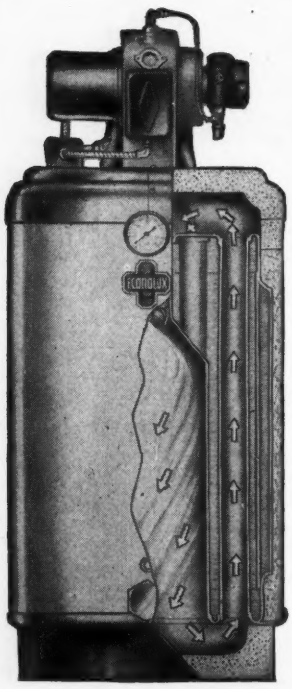
THE 48TH ANNUAL MEETING of the National Petroleum Association, Washington 4, D. C., opened on September 13 at the Hotel Traymore, Atlantic City, N. J., and continued for the next two days. Prominent on the program was A. L. Nickerson, in charge of domestic marketing for Socony-Vacuum Oil Co., who discussed the importance of marketing and the benefits it has brought to the public. Walter Chamblin, Jr., vice president, National Association of Manufacturers; Joseph E. Moody, president, Southern Coal Producers' Association and Hanson Baldwin, military editor, *New York Times*, also spoke during business sessions.

A feature of the September 14 joint meeting of the Association's Departments of Manufacture and Standards and Tests was a panel discussion on "The effect of emergency fuel requirements upon military and civilian gasoline and other petroleum fuels." Nine speakers participated, followed by an open forum in which questions were asked from the floor.

SBI Meeting Stresses Advantages of ASME Code

THE 22ND ANNUAL MEETING of the Steel Boiler Institute, Philadelphia, Pa., held at Absecon, N. J. on June 13, heard Paul K. Addams, chairman, Sales and Distribution Committee, warn of the potential danger to the public in the installation of steel boilers not made in accordance with the Boiler Construction

A "midget" that does a whale of a **two-way** *heating job!*



The ECONOLUX is easy to sell, easy to install, easy to service.
It comes to you completely assembled—all ready to hook up to water, power and flue lines.

JOHNSON'S

ECONOLUX 150-VW

Supplies abundant Hot Water Heat and ample faucet Hot Water for a 10-room home!

This amazing "midget" is making lots of new friends among both users and sellers. In spite of its compactness (it's only 24"x60" in size) it generates 150,000 B.T.U. output total . . . all the heat a good sized home in a cold country can use—and from a separate, outer-jacket compartment, it supplies automatic, day-and-night hot water as well.

Homeowners are delighted with its capacity . . . and amazed at its low fuel-consumption and efficiency. If you need an automatic heating-and-hot-water unit for domestic use . . . you ought to check up on the performance and the cost of this new Econolux.

ALSO AVAILABLE FOR STEAM RADIATOR SYSTEMS

ECONOLUX Model 150-VS

For use with steam heating systems, the ECONOLUX 150-VS is built without the outer water-heating jacket. Otherwise it is the same as the ECONOLUX 150-VW in size, capacity and operation.

Johnson Oil Burners

Builders of fine Oil Burner Equipment since 1903

S. T. JOHNSON CO.
940 Arlington Ave., Oakland 8, Calif.
401 No. Broad St., Philadelphia 8, Pa.

round or square, rectangular or pear—

PANELOX has it!

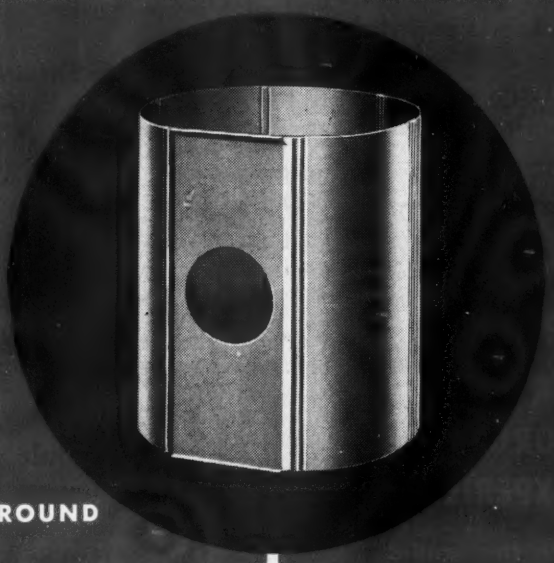
YOUR MOST COMPLETE LINE OF COMBUSTION CHAMBERS FOR DOMESTIC USE!

No matter *what* your requirements in domestic combustion chambers, there's a PANELOX Heat-resistant Stainless Steel Chamber to fit the job! Round or square, rectangular or pear-shaped—32 standard sizes and shapes—*plus* many special designs for original equipment manufacturers.

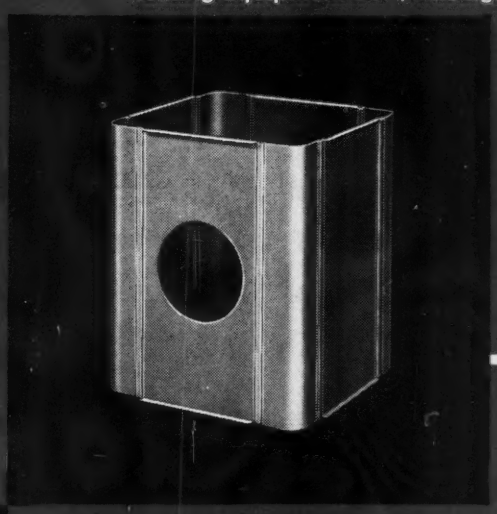
Saves fuel (up to 25%) . . . provides cleaner, quieter heat . . . eliminates over-ride for more uniform comfort. Light in weight . . . no breakage . . . easiest to install.

No other chamber offers you—or your customers—so much. Write, wire or phone for complete list of sizes and prices.

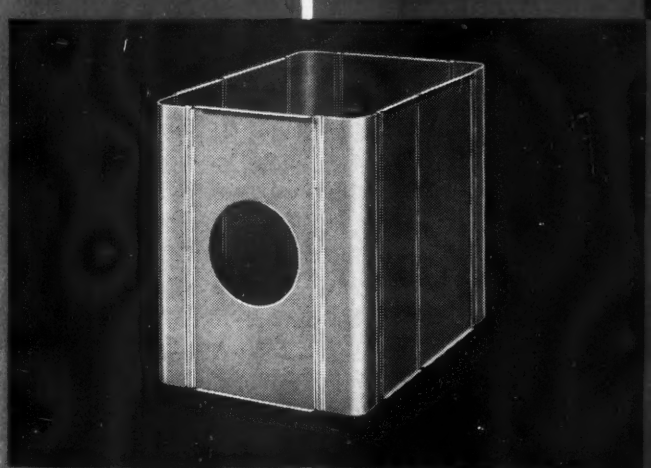
STEFCO STEEL COMPANY
Heating Equipment Div., Michigan City, Ind.



ROUND



SQUARE



RECTANGULAR

PEAR

- Time-proved heat-resisting stainless steel
- Interlocking panels—no tools required
- No backfill or cement needed
- No breakage in shipment or handling
- Installed in minutes—heats up in seconds—stands up for years

Easy to install—interlocking panels slide together easily.

Four thicknesses of metal at seams—provides extra strength, extra rigidity.

Panels made in several widths for easy fitting to a wide range of chamber dimensions.

PANELOX® HEAT-RESISTANT STAINLESS STEEL COMBUSTION CHAMBERS

Code of the American Society of Mechanical Engineers. He pointed out that ratings on non-code boilers set by manufacturers often are incorrect and that some descriptive advertising contains deceptive phrases that imply compliance with the SBI rating formula and ASME requirements. Mr. Addams reported the unanimous opinion of his committee that every effort should be made to obtain wider acceptance of SBI ratings and ASME construction, and that the FHA should be encouraged to enforce these requirements.

R. A. Locke, SBI president, revealed that SBI Rating Codes for Scotch Type Boilers have been printed within the past year and Simplified Practice Recommendation R157-50 was issued, as a revised version of R157-37. Directors named at the meeting for three year terms were: J. T. Dillon, J. F. Johnston, Jr., and H. H. Peek, Jr. Other board members are Elbert M. Palmer and Paul K. Addams. Mr. Locke was re-elected president and Arthur P. Weiss, vice president. John C. Trefts was named chairman of the executive committee.

Kresky—
The Securely Anchored Line
FOR SECURITY IN ALL WEATHER DEPEND ON THE KRESKY LINE, FORGED BY KNOW HOW, TEMPERED BY EXPERIENCE
EXPERIENCE
Kresky has been the leader for 40 years.
DEMAND
Kresky will show you proof that Kresky is preferred for home modernization.
POLICY
Kresky's policy protects you at all times.
DEPTH
Kresky's more than 60 models meet every need.
SALEABILITY
Kresky superiority sells itself by demonstration.
There is no substitute for the Famous Patented Kresky Forced Air Induction Oil Burner, the first, and always the leader.
Floor Furnaces • Basement Furnaces • Wall Furnaces
Utility Room Furnaces • Water Heaters • Range Burners
Listed by Underwriters Laboratories, Inc.
WRITE TODAY for complete information
KRESKY MFG. CO., INC.
100 H STREET
PETALUMA, CALIFORNIA
Canadian Factory, Kresky Mfg. Co.
Vancouver, B. C.
Kresky OIL BURNERS

Coffin Named Chairman of Northwest Oil Burner Division

DURING its Oilburner Convention, held July 24 and 25 at the Hotel Nicollet, Minneapolis, the Northwest Petroleum Association elected R. A. Coffin, Sigwald Eng. Co., Minneapolis, chairman of the Oil Burner Division. Vern Grudem, of the company of the same name, St. Paul, Minn., was named to the board of directors.

One activity of the Division will be the preparation of articles on burner subjects to be featured in the monthly bulletin issued by the Association.

During the Convention a proposal was made by Dunwoody Institute faculty members to promote legislation for State control of the heating industry. A committee was named to study the matter and report its findings to the membership.

I-B-R Extends Schedule Of School of Modern Heating

AN ADDITIONAL eleven sessions of the School of Modern Heating have been announced by its sponsors, The Institute of Boiler and Radiator Manufacturers, New York 17, N. Y. The schools, designed to help dealers obtain a larger and more profitable share of the heating business have been conducted in various cities since April and consist of a three-day intensive course under the guidance of an experienced instructor.

Following are the dates and places of the newly announced session: October 3 to 5, Duluth, Minn.; October 10 to 12, Davenport, Iowa; October 17 to 19, St. Louis, Mo.; October 24 to 26, Indianapolis, Ind.; October 31 to November 2, Chicago; November 8 to 10, South Bend, Ind.; November 14 to 16, Toledo, Ohio; November 28 to 30, Hartford, Conn.; December 5 to 7, Worcester, Mass., and December 12 to 14, Bridgeport, Conn.

Students wishing to enroll may obtain information from the Institute at 60 East 42nd St., New York.

OIIC Distributes Poster; Offers Folders for Dealers

BILLBOARD POSTERS are being distributed by the Oil Industry Information Committee, New York 20, N. Y., to marketing companies that use outdoor advertising. In full color, the poster points

Sales Are Sweet...Satisfaction's Complete...
with TORIDHEET

Phone 112-J

Avery Stone

RECEIVED AUG 8 1950 Cleveland Steel Products

Torid-Heating Company

308 North 15th Street
NILES, MICHIGAN

Just like magic

August 3, 1950

Mr. R. W. Byrd
Oakley & Oldfield
329 So. Pitcher St.
Kalamazoo, Michigan

Dear Bob:

This writer wishes to thank you for your splendid cooperation, making it possible to give our customers immediate attention.

Obviously our dealer expansion program must be consistent with our facilities, in order to furnish proper equipment to make a profitable operation and to justify the requirements that are a definite part of our installation program.

As you know in the past, I have installed and serviced several makes of oil and gas fired units. I am more than pleased with Toridheet. I am thoroughly convinced that the Model J, Electronically controled, need not fear any competition. The Model G conversion burners will more than hold their own in appearance and operation. The CRA units have been very successful with CO 2 of 13 and 14%. Stack temperatures as low as 345 degrees. The Model F conversion burners in cast iron furnaces are very efficient with CO 2 of 13 and 13½% and stack temperature not exceeding 400 degrees. My customers tell me that these burners are costing less to heat with oil. Less than their cost with coal. The absence of noise puts this burner in a class by its self.

I am very proud of the Toridheet burners and units.

I have often heard the fellows remark, "That sure went together nice. Yes, Just Like Magic."

Hoping to see you soon.

Yours truly,
Avery Stone

YOUR HOMES COMPLETE WITH TORIDHEET

For **OIL**—Famous Toridheet Rotary Wall Flame burner, pressure burners, and complete heating plants.

For **GAS**—Toridheet conversion burners, and complete units—compact, efficient.

CLEVELAND
Toridheet
AUTOMATIC HEATING

Write for a copy of "Verdict" the book users wrote to say "We're satisfied"... a mighty convincing story on Toridheet.

TORIDHEET DIVISION, Cleveland Steel Products Corp.
7304 Madison Avenue, Cleveland 2, Ohio

out that "Progress and Petroleum Go Hand in Hand." Jobbers, fueloil distributors and other industry units can secure the posters at a cost of $2.00 each, plus shipping charges.

Also available, as material to be used to promote the observance of Oil Progress Week, October 15 to 21, is a six-panel folder for dealers, jobbers and distributors of petroleum products. Printed in two colors and illustrated with informal sketches, the folder is entitled "Blow your Horn" and urges that the story of oil be told during Oil Progress Week. The folder explains the significance of the Week, lists what can be done to participate and is intended for distribution by oil companies. Available at $10.00 per thousand.

Another folder is a four-page, two-color leaflet, "Hand in Hand," prepared as an envelope enclosure for oil company mailings to credit card and fueloil customers, stockholders, employees and community leaders. Illustrations indicate how competition and oil research mean better products and more products at reasonable prices.

Any of this material is available from district offices of the Committee, or from the national office at 50 West 50th St., New York 20, N. Y.

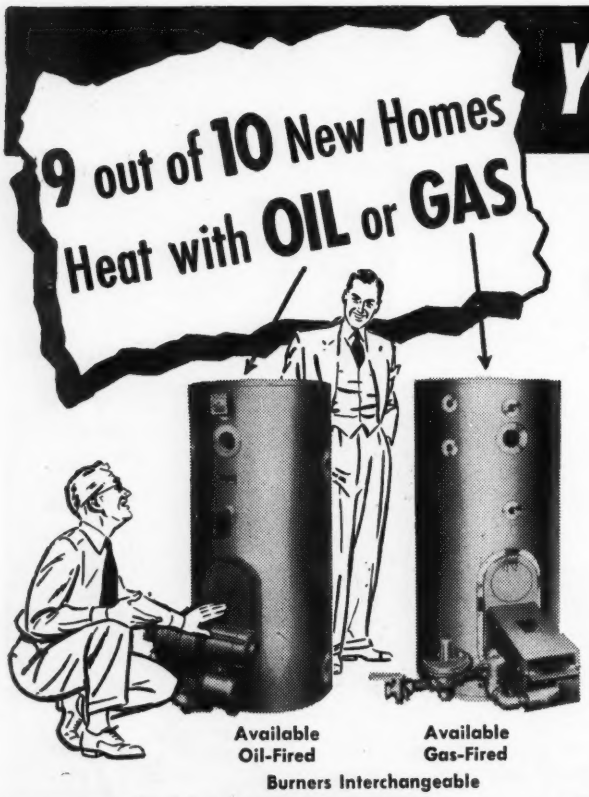
Milwaukee Oil Men's Club Gather at Stag Picnic

MEMBERS AND GUESTS participated in the stag picnic of the Milwaukee Oil Men's Club, held at Archie Paine's "Acres of Paine" on August 18. Two separate catering services provided for food and drink, with all present enjoying the refreshments, good fellowship and games.

The committee in charge included Chairman Don Gallagher; R. Schramm and Earl Paulson in charge of Food; Joe Holz and Wally Benz, Games; M. G. Peeters and Dave Gluck, Drinks; Ben Dodner and Joe Hunt, Entertainment; Archie Paine, Host and H. M. Mottram, Secretary.

Massachusetts Requires Notation On Conditional Sales Contracts

THE 1950 MASSACHUSETTS Legislature has enacted, as part of the General Laws, a section which provides that every contract of conditional sale in which finance charges are included shall have printed



You Sell BOTH Markets

with ALDRICH
HEAT-PAK BOILER-BURNERS

Expand your market to 90% of new home construction with Aldrich. Sell more, with less inventory . . . cash in with oil units, cash in again with gas burners.

Mounting plates are similar; installation is fast and simple. And you can convert from one fuel to another without changing boiler set-up or performance.

7 makes 14

Aldrich Heat-Pak boilers come in 7 sizes, from 100,000 to 808,000 BTU/hr. With both oil and gas, you have 14 compact heating plants to sell everything from modern small homes to big commercial installations. Vertical-type, compact and efficient; shipped crated fully assembled, ready to set in place and connect.

Profit with ALDRICH—Get Details Today. Write or wire for Heat-Pak facts, full specifications.

ALDRICH HEAT-PAK PRODUCTS

The ALDRICH Company
103 East Williams Street, Wyoming, Ill.
A Subsidiary of Breeze Corporations, Inc.

ANOTHER BREEZE MARK PRODUCT

More G.P.M. per dollar for small jobs!

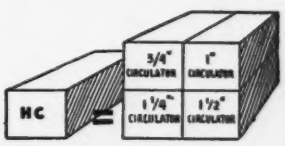
TACO CIRCULATORS have *EXTRA* capacity...

Full 1½" capacity for all sizes (¾", 1", 1¼", or 1½")

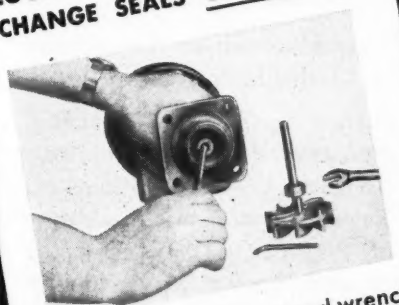
Taco circulators have that extra capacity needed for today's modern small pipe radiant heating jobs (radiators, convectors, baseboards or panels).

LESS and MORE FLEXIBLE INVENTORY

Interchangeable flanges mean one circulator plus four sets of flanges (¾", 1", 1¼" or 1½") equals four sizes of circulators in stock.



LOOK HOW EASY IT IS TO CHANGE SEALS ON THE JOB



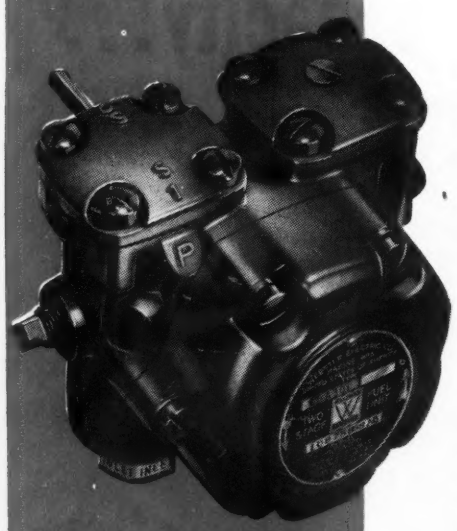
All you need is an open end wrench, screwdriver and allenset screw wrench. Taco's carbon seal runs against a stainless steel seal eliminating any wear in bracket.

Better Heating-Better with Taco

TACO HEATERS, INCORPORATED
137 South St., Providence 3, R. I.

OT*
SERVICEMAN SAYS —

"NAW!
I'm not lazy ... just smart!"



"Why beat my brains out trying to service fuel units when I can use Webster Electric Fuel Units and do it the clean, simple and easy way.

'Leisurely servicing', I calls it. Everything is simplified, I don't need crates of tools and on top of that I save time.

Naw! I'm not lazy but smart enough to choose the easy and efficient way to do things. It starts by specifying and using Webster Electric Fuel Units. If you want to profit by my experience ... get smart ... specify "WE" Fuel Units for replacements and recommend them on new equipment too."

These Fuel Units are made by Webster Electric Company, Racine, Wisconsin, Established 1909.

*Old Timer

WEBSTER ELECTRIC
RACINE • WISCONSIN

"Where Quality is a Responsibility and Fair Dealing an Obligation"

thereon in not less than 8 pt. boldface type the following: "The finance charges provided herein are not regulated by law. They are a matter of agreement between the parties." Failure to comply gives the customer a valid defense against recovery of finance charges and fees.

Banks and finance companies automatically have added the statement to their forms, but for those dealers who wish to carry their own conditional sales contracts in Massachusetts, the legal counsel of the Oil-Heat Institute of New England, Boston 15, Mass., has stated that a rubber stamp containing this statement will insure compliance when stamped on conditional sales contracts for heating or other equipment.

OHI Reactivates Traffic Committee

AMONG ACTIVITIES undertaken at its quarterly board of directors meeting in Chicago on July 11, the Oil-Heat Institute of America, Inc., New York 16, N. Y., reactivated its Traffic Committee. President A. T. Atwill named the following as members of the committee: C. F. Kirwan, Eureka Williams Corp., Chairman; W. C. Leitch, Gilbert & Barker Mfg. Co.; T. A. Crawford, Timken Silent Automatic Div.; C. A. Potts, U. S. Machine Corp. and G. E. Hochstein, The Heil Co.

The next directors' meeting is scheduled for Baltimore during October, with plans being formulated to tie in with the Oil Industry Information Committee program for Oil Progress Week. In addition, the Distribution Division Chapter in Baltimore will meet the day after the directors meeting.

New Hampshire Announces Oilburner Installation Rules

ACTING upon recommendations submitted by F. N. Beckwith, executive secretary, Oil-Heat Institute of New England, Boston 15, Mass., the Board of Fire Control, Office of the Fire Marshal, State of New Hampshire, has issued rules and regulations covering the installation of power oilburners and oilburning equipment. The rules became effective July 1.

A copy of the pamphlet containing the rules has been sent by the Association to all of its members in the state.

Warm Air Association Roster Lists 122 Manufacturer Members

A JULY 1950 ROSTER issued by the National Warm Air Heating and Air Conditioning Association, Cleveland 14, Ohio, lists 122 manufacturer members. These consist of companies manufacturing furnaces, as well as producers of accessory equipment and supplies used in warm air heating installations.

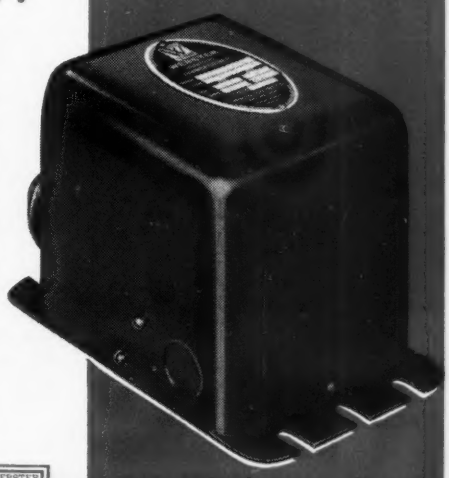
The list includes:

A & A Register Co., Cleveland Ohio
Adelta Mfg. Co., Inc., Philadelphia, Pa.
Affiliated Gas Equipment, Inc., Cleveland, O.
Agricola Furnace Co., Gadsden, Alabama
Air Control Products, Inc., Coopersville, Michigan
Air Controls, Inc., Cleveland, Ohio
American Air Filter Co., Inc., Louisville, Ky.
American Foundry & Furnace Co., Bloomington, Ill.
American Furnace Co., St. Louis, Mo.
Armco Steel Corporation, Middletown, Ohio
Armstrong Furnace Co., Columbus, Ohio
Armstrong Company, Detroit, Michigan
Auer Register Co., Cleveland, Ohio
Automatic Burner Corp., Chicago, Ill.
Automatic Firing Corporation, St. Louis, Mo.
Automatic Humidifier Co., Cedar Falls, Iowa
Beck Engineering Combustion Kompany, St. Louis, Missouri
Brundage Co., Kalamazoo, Michigan
C. L. Bryant Corp., Cleveland, Ohio
Campbell Heating Co., Des Moines, Iowa
Carnegie-Illinois Steel Corp., Pittsburgh, Pa.
Chandler Co., Cedar Rapids, Iowa
Chicago Furnace Supply Co., Chicago, Ill.
The Coleman Company, Inc., Wichita, Kans.
Conco Engineering Works, Mendota, Ill.
Condensation Engineering Corp., Chicago, Illinois
Crise Mfg. Co., Columbus, Ohio
Detroit Lubricator Co., Detroit, Michigan
Dole Valve Co., Chicago, Illinois
Dowagiac Steel Furnace Co., Dowagiac, Michigan
Excelsior Steel Furnace Co., Chicago, Illinois
The Farquhar Furnace Co., Wilmington, O.
Field Control Division, Mendota, Illinois
Fireline Stove & Furnace Lining Co., Chicago, Illinois
The Firewel Co., Inc., Buffalo, New York
Forest City Foundries Co., Cleveland, Ohio
Front Rank Furnace Co., St. Louis, Missouri
Furblo Company, Hermansville, Michigan
General Controls Co., Glendale, California
General Electric Company, Bloomfield, N. J.
Gross-Aire Mfg. Co., Inc., Overland, Mo.
Hall-Neal Furnace Co., Indianapolis, Ind.
Hart & Cooley Mfg. Co., Holland, Michigan
The Heil Co., Milwaukee, Wisconsin
Hess-Snyder Co., Massillon, Ohio
The Hess Co., Chicago, Illinois
Holland Furnace Co., Holland, Michigan
Home Furnace Co., Holland, Michigan
Hugert Mfg. Co., Medina, Ohio
Independent Register Co., Cleveland, Ohio
International Heater Co., Utica, New York
International Oil Burner Co., St. Louis, Mo.
Iron Fireman Corp., Cleveland, Ohio
Jackson & Church Co., Saginaw, Michigan
Kalamazoo Stove and Furnace Co., Kalamazoo, Michigan
Keith Furnace Co., Des Moines, Iowa
Ko-Z-Aire, Inc., Red Oak, Iowa
Lau Blower Co., Dayton, Ohio
Lennox Furnace Co., Marshalltown, Iowa
Lima Register Co., Lima, Ohio
Magirl Foundry & Furnace Co., Bloomington, Illinois
Maid-O-Mist, Inc., Chicago, Illinois
The Majestic Co., Huntington, Indiana

OT* SERVICEMAN SAYS—

"Just like that... Compact... Neat and Trim!"

"There's one thing about Webster Electric Transformers—they really fit in with smart-appearing equipment—neat, compact and still easy to get at . . . a bit smaller than usual too. This adds up to giving my customers a nice looking job—and believe me, that's important—then add the excellent performance features I always get and you have another good reason why I have specified Webster Electric Transformers for many years. If anyone wants to profit by my successful experience, I'd say, 'just specify Webster Electric the next time you order.'"



Webster Electric transformers are made by Webster Electric Company, Racine, Wisconsin. Established 1909.

*Old Timer

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Minneapolis-Honeywell Regulator Co., Minneapolis, Minnesota
Montag Stove & Furnace Works, Portland, Oregon
Morrison Products, Inc., Cleveland, Ohio
Morrison Steel Products, Inc., Buffalo, N. Y.
L. J. Mueller Furnace Co., Milwaukee, Wis.
Norge Heat Div., Detroit, Michigan
Norman Products Co., Inc., Columbus, Ohio
Northwestern Stove Repair Co., Chicago, Ill.
Norwalk Airconditioning Corp., Norwalk, Connecticut
Ohio Valley Hardware & Roofing Co., Evansville, Indiana
C. A. Olsen Mfg. Co., Elyria, Ohio
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Reynolds Metals Co., Louisville, Kentucky
Rheem Mfg. Co., Richmond, California
Roberts-Gordon Appliance Corp., Buffalo, New York
Rock Island Register Co., Rock Island, Illinois
The Rybolt Heater Co., Ashland, Ohio
St. Louis Furnace Mfg. Co., St. Louis, Mo.
The Schill Mfg. Co., Crestline, Ohio
Skuttle Mfg. Co., Detroit, Michigan
Stainless & Steel Products Co., St. Paul, Minnesota
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Thatcher Furnace Co., Garwood, New Jersey
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U. S. Air Conditioning Corp., Minneapolis, Minnesota
United States Register Co., Battle Creek, Michigan
Utica Products, Inc., Utica, New York
Viking Air Conditioning Corp., Cleveland, Ohio
Viking Mfg. Corp., Cleveland, Ohio
Waterman-Waterbury Co., Minneapolis, Minnesota
Webster Electric Co., Racine, Wisconsin
White-Rodgers Electric Co., St. Louis, Mo.
Williams Oil-O-Matic Div., Bloomington, Ill.
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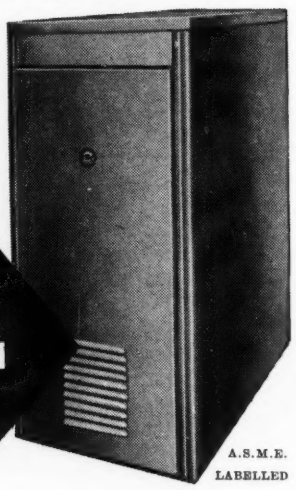
DO YOU REMEMBER?

WHEN "BARLER'S" HEATER WAS CONSIDERED TOPS IN HEATING UNITS IN ITS DAY.*

* (World's Columbian Exposition, Chicago, 1894)

FOR TOP QUALITY . . .
PROFIT MAKING BOILERS . . .
TODAY . . . . TOMORROW
AND ALWAYS



ITS FEDERAL
"A SIZE TO FIT EVERY NEED"

Federal Gas or Oil Boilers

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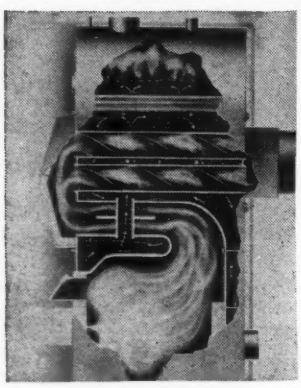

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"TACO" and "BELL & GOSSET" equipment

● *EFFICIENT* . . . Federal Boilers are factory tested under abnormally high hydrostatic pressure. This and many other rigid tests assure its ability to withstand hard use and give years of perfect service.
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Model #FVW For small low cost homes with radiant heat, hot water or steam. 66,000 to 96,000 B.T.U. output.
Model #FC Oil or gas fired unit ideal for use with hot water heating systems, radiant heat or steam. 77,000 to 312,000 net B.T.U. output.
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Northwest Petroleum Group Promoting "Heat with Oil"

A CAMPAIGN, intended to promote oil-heat, stimulate the sales of oil and oil-burners and build a public awareness of the safety of oil heat, has been undertaken by the Northwest Petroleum Association, Minneapolis 2, Minn.

Initial step in the campaign is the issuance of hundreds of cuts made up for use on letterheads, envelopes, invoices, literature and advertising of members of the Association. The circular illustration is dominated by the slogan, "If Only for Safety's Sake Heat with Oil," with an appropriate picture centered within the circle.

The cuts are available to members—and others who would like to use them—at a cost of $2.25 each, in sizes of 1, 2 and 3½ ins. in width.

Indiana Sheet Metal Group Honors Purdue's Prof. Miller

PROF. WILLIAM T. MILLER, School of Mechanical Engineering, Purdue University, was the honored guest at a luncheon at the University's Union Building on July 20. The occasion was the notification by the Sheet Metal and Warm Air Heating Contractor's Association of Indiana, Inc., Terre Haute, Ind., that arrangements had been made to have his portrait painted and presented to the University.

Do You Want Tubing That Is Easy to Handle?

I'M THE ANSWER. I'M IN A PACKAGE WITH MY NAME AND SPECIFICATIONS LEGIBLY PRINTED ON THE OUTSIDE FOR QUICK IDENTIFICATION. CUT OFF AS MUCH AS YOU NEED AND THE REST OF ME WILL STAY CLEAN AND REMAIN PROTECTED IN THE STURDY PACKAGE UNTIL YOU WANT MORE FOR THE NEXT USE.

I'M WOLVERINE COPPER TUBE

WOLVERINE TUBE DIVISION

Calumet & Hecla Consolidated Copper Company
INCORPORATED
MANUFACTURERS OF SEAMLESS, NON-FERROUS TUBING
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Plants at Detroit, Michigan and Decatur, Ala.

PLANTS IN DETROIT AND DECATUR, ALA.
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fueloil & oil heat

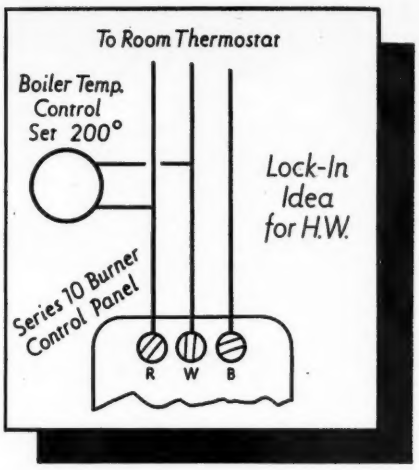
Everyday Snags

Hot Water Ideas

A fueloil-minded heating expert would not lay out things this way, yet in certain areas it's common to encounter an electric water heater which receives its input water from a tankless coil in an oil-fired steam boiler. The steam boiler is usually hot during the heating season, and then provides the water heater with well preheated hot water. In summer, the steam boiler might take the chill from the cold water, tempering it by bringing it to nearly basement temperature.

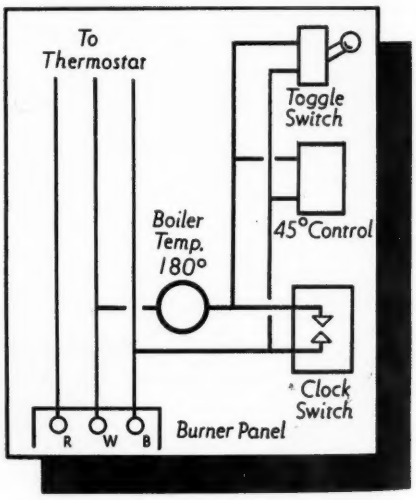
Encountering such a rig in a home where in summer there was insufficient hot water at times, related to the installation of a new and much-used automatic washing machine and also perhaps to the slow rate of recovery of the electric water heater, a burner expert used the lock-in idea shown in the diagram. This can be used only with a M-H Series 10 type control panel.

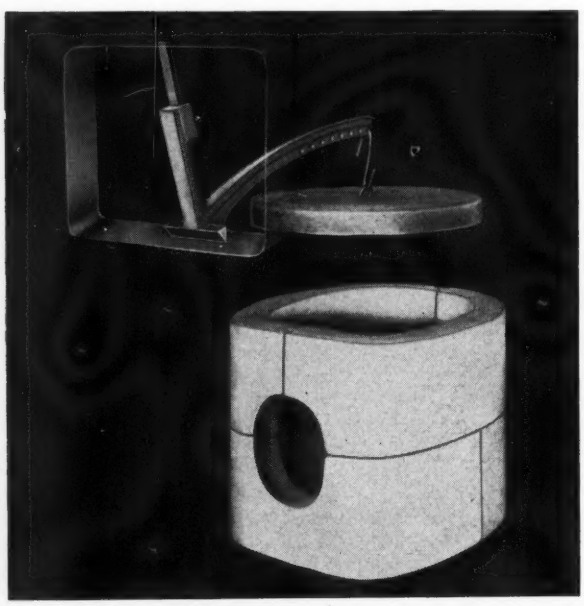
All control experts will recognize at once that, once started by raising and lowering the room thermostat, the burner will continue operating until the boiler temperature control, set at 200°, turns it off.



The instructions given the owner are simple: In summer when you know you are likely to run out of hot water when you use your washing machine, set up your room thermostat all the way about 30 minutes before you will start using hot water for washing. Then immediately lower the setting of the room thermostat. You will start the burner, and it will run until the boiler is almost steaming hot, then will stop by itself and remain idle. You may repeat this every hour or so on washday if you like.

The same expert worked out also the different control set-up shown in the second diagram. This is used for a similar equipment layout having a tankless water heater coil to feed an electric water heater. The clock switch turns on the steam boiler for full blast water preheating from 11 AM until noon, and from 5 to 6 PM, because then loads of hot water will be needed for the auto-





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DIAMETERS OF 12", 14", OR 16".

FITS HEATING PLANTS UP TO 30" DIAMETER.

INSTALL WHEN BURNER IS RUNNING, IF NECESSARY.

LASTS ALMOST INDEFINITELY.

4.08 MILES OF OIL-TANK CARS

(539 cars, to be exact) would be needed to carry the oil saved yearly by users of MYKA-DISK Baffles. For ten years

MYKA-DISK

has been standard equipment for Gun-Type Conversion Oil Burners in 40 States. If you want details and prices, write for

4-page BULLETIN No. 15

INSULATION & REFRACTORIES CO.
WILLIAMSON . . . . . N. Y.

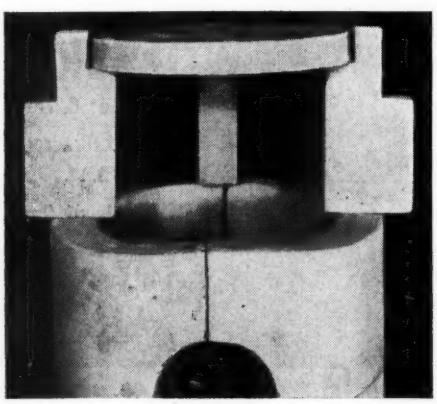
No. 2 MYKA-DISK

A CHEAPER MODEL, BUT JUST AS EFFECTIVE.

SCORES OF THOUSANDS IN USE, NATION-WIDE.

OIL-SAVING 10% TO 15% AND UPWARD.

A GENEROUS PROFIT FOR ANY INSTALLER.



SELL THE *Balanced Line* OF HEATING EQUIPMENT—

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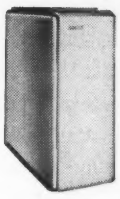
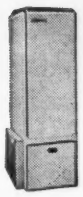
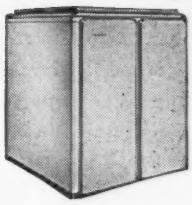
ANY SIZE • ANY TYPE ANY FUEL



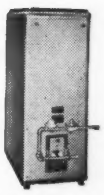
Series A Gas-Fired Steel Air Conditioning Unit.



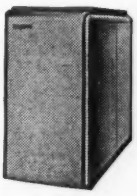
Series H Gas-Fired, Steel Utility Air Conditioning Unit.



Series CA Gas Fired Air Conditioning Unit with cast iron Heating Element.

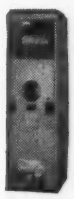


Series G Gas-Fired Gravity Furnace Available with Steel or Cast Iron heating element.



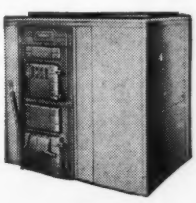
Series O Gun, Oil-Fired Air Conditioning Unit, Steel heating element.

No. HC-95-E Gas, Counterflow Unit, for Slab Floor. Perimeter heating.



No. VHC-75-E Oil, Counterflow Unit, for Slab Floor, Perimeter heating.

Series No. 700 Coal-Fired Gravity Furnace. Steel Heating Element.



Series AC-F Coal-Fired Air-Conditioning Unit.

Series C Coal-Fired, Cast Iron, Furnace.

For Gravity Installations
For Forced Air Installations
For Perimeter Heating
For GAS . . . OIL . . . COAL
With Cast Iron Heating Elements
With Steel Heating Elements

AND HERE'S A MOST IMPORTANT FEATURE THAT MAKES *Luxaire* THE OUTSTANDING LINE OF HEATING EQUIPMENT

Most Luxaire Gas Fired Units are readily converted to Oil Fired Units by substituting the Luxaire Oil Burner.

Also—Luxaire Oil Fired Units can be converted to an A.G.A. approved Gas Fired Unit by substituting the Luxaire Gas Burner.

Yes — with Luxaire you really have the balanced line of heating equipment. The line that will meet the demands of practically any heating specification.

Colorful Luxaire catalogs . . . dealer selling and sales promotion helps are available for you at your nearest Luxaire jobber.

THE *Luxaire* C. A. OLSEN MANUFACTURING COMPANY • • ELYRIA, OHIO

HEATING & AIR CONDITIONING UNITS

fueloil & oil heat

matic dishwasher. The boiler stays at 180° for this. The toggle switch, located at the home laundry machine, should be turned on before this machine is used.

During heating season weather the oilburner might remain idle for two hours. Then drawing great amounts of hot water in one hour, say, would chill the boiler and result in the electric water heater's receiving cold water and ultimately becoming cold. To prevent this from happening, an outside thermostat set for 45° keeps the 180° boiler temperature control in action during the entire heating season.

The effect of using this control layout is to employ the electric water heater at its best advantage, since the oilburner expert finds it installed and the owner wants it used, even while carrying the heavy hot water loads using fueloil, and on top of this using mainly oil for water heating in winter when there is great advantage in doing this because the boiler is hot most of the time anyhow. The use of this somewhat complicated control rig, says the expert who devised it, adds only microscopically to the oil consumption but cuts the consumption of electricity for water heating by 75% to 90%. Besides, it provides plenty of hot water.

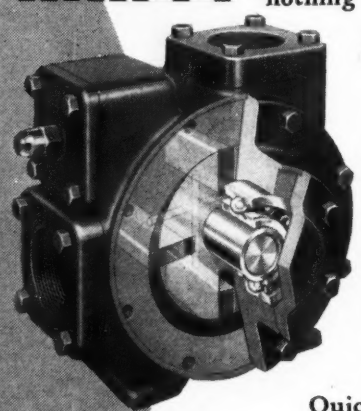
BLACKMER TRUCK PUMPS ARE

QUIET

Freedom from noise is achieved with non metallic sliding vanes. This feature is exclusive with Blackmer.

THRIFTY

Priced right to buy, Blackmer Truck Pumps cost little or nothing for maintenance.



Self-adjusting for wear

Note the vane placement in the phantom pump and the enlarged detail at the left. Vanes are self-adjusting for wear. If the vanes eventually wear to the extent indicated by the shaded area in the drawing, they may be easily replaced at little cost. The pump lasts a lifetime.

FLEXIBLE

Quickly reversible, tapped or flanged connections, power take-off or engine driven, saddle or box mounting at any angle.

EFFICIENT

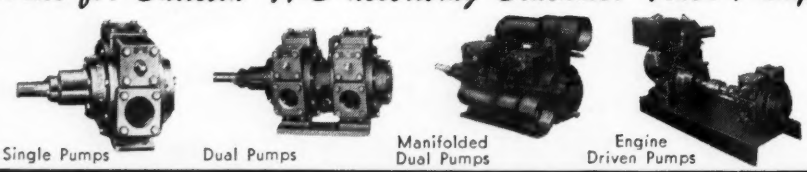
Full rated capacity of the 40, 60, 100 and 200 g.p.m. Blackmer truck pumps is delivered at moderate shaft speeds.

RUGGED

Precision-fitted parts of "battleship" durability are assembled into a life-time unit for long, trouble-free service.

Because Blackmer Truck Pumps are rotary, positive displacement and self-priming, they serve every known service to which truck pumps can be put, some of which other types cannot handle. Because Blackmer supplies all popular sizes up to 200 g.p.m., your truck pump needs can best be served by Blackmer.

Write for Bulletin TP3 describing Blackmer Truck Pumps



Single Pumps | Dual Pumps | Manifolded Dual Pumps | Engine Driven Pumps

BLACKMER PUMP COMPANY – GRAND RAPIDS, MICHIGAN

Plugged Strainer Alarm

For years there's been a vacuum gauge between the suction line strainer and big fueloil pump in this industrial boiler room, therefore the chief engineer knows that the strainer needs cleaning when the vacuum gauge needle, which gives a minimum reading of 6", starts climbing and reaches 12" or 15". The firemen had orders to read the vacuum gauge every hour or two. This was inconvenient because the oil pump, strainer, and gauge were quite far from the front of the boilers where the firemen usually stayed to watch the fires and the instrument panel. It was considered necessary, however, because the suction line strainer, usually good for 24 to 48 hours after a cleaning, would according to experience need cleaning in four hours if exceptionally sediment-loaded fueloil were delivered to the plant. Strainer plugging was a worry because it had once caused a shutdown of the burners, a drop in the steam pressure, and considerable explaining. Besides plugging of the strainer in use, there had been failure to clean the other side of the duplex strainer which should have been standing by clean as a spare.

"I got the feeling the firemen had no use for me, and all on account of my order to keep an eye on that vacuum gauge," says the chief engineer. "I got tired of it. Every time I so much as walked by or glanced at a fireman, he'd sheepishly start the long jaunt to read that gauge."

Recently the chief engineer made an improvement that eliminated most of the walking tours. He installed on the instrument panel, which always is watched closely of necessity, a bright red signal light. Connected to a vacuum control located at the oil pump intake connection, this will go out when the pump vacuum reaches 12" because the suction line strainer is plugging.

"The men have, I tell them, at least half an hour to swing over to the clean strainer after the signal light goes out, but I notice they swing over right away. I've told them also in a nice way that in some boiler rooms there are no vac-

Anything LESS than HEIL quality usually costs MORE later!

Heil *Cruiser* Tanks are designed for city delivery of gas, fuel oil, or both. For fuel oil delivery the pump, hose reel and meter are located in the weatherproof, right side compartment. In summer, this equipment is easily removed and the space used for package goods and other items. *Available for immediate delivery in capacities from 1500 to 2100 gallons.*

HEIL Truck Tanks operate longer . . . at less cost . . . because of basically sound design and construction

In the purchase of truck tanks, your ultimate decision may influence your profits for the next ten years or more. If you take the time to make a point-by-point comparison, you will find this decision easy to make. For in few things you buy is the difference in first-cost dollars so small, when compared with the difference in prospects for profit.

A Heil tank is engineered to outlast the truck chassis. The entire tank, supporting channels, cabinets, catwalk, skirting — are built as a single, integrally-welded unit. Yet its simple, effective mounting method provides lithe, smooth roadability that keeps it in service years longer.

Heil research, special techniques and modern precision equipment now make it possible to provide custom quality at prices you'd expect to pay for ordinary tanks. Heil is *able* to give you more for your money — *and does!*

If you are one of the many fuel oil marketers now using Heil tanks, you know these things. If not, ask the men who do. They're all around you. And it is significant that *three out of four sales of Heil tanks are repeat sales to satisfied users!*

Get the facts! Send for an illustrated booklet of specific details on Heil fuel oil truck tanks. The wide range of styles and sizes assures meeting your exact requirements.

T-256

THE HEIL CO.

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Factories: Milwaukee — Hillside, N. J.

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Heil *Whippet* tanks are designed for the local delivery of fuel oil. Weatherproof rear cabinet is integral with tank shell, deep enough to house hose reel and meter equipment. Also supplied with cabinets on one or both sides. *Available for immediate delivery in capacities from 1000 to 1600 gallons.*

Heil *Meteor Jr.* tanks are primarily rural delivery units in which mixed loads of such products as gasoline, kerosene, diesel oil, and fuel oil may be delivered simultaneously. They are also commonly used for city delivery. *Available for immediate delivery in capacities from 800 to 1200 gallons.*

uum gauges and no signals, and that therefore to play safe the firemen have to clean the suction line strainers every shift, that is every eight hours, whether cleaning is needed or not. Life is more pleasant. I don't see the firemen walking sheepishly towards the suction line vacuum gauge any more."

Hot Water Data

After he had asked a question about the maximum gpm output, 100° F. rise basis, of a tankless water heater in a boiler fired 1.1 gph, a burner dealer was given a thumb rule that helps solve such problems. The FO&OH thumb rule is: A firing rate of 1.0 gph devoted entirely to heating water gives 2.0 gpm of hot water on the 100° F. rise basis.

Desiring to probe further because he wondered if a boiler fired 1.1 gph could give 180 gallons of hot water, 100° F. rise, in one hour, this dealer asked for exact figuring, no thumb rules.

Here's the answer on an exact basis.

Figurnig that the water delivered at 150° weighs 8.18 lbs. per gallon, a flow rate of 1.0 gallons-per-minute of such water amounts to 8.18 × 60, or 490.8 lbs. per hour. The number of Btu's per hour needed, then, to produce 1.0 gpm of 150° water on a 100° rise basis equals 49,080; obtained simply by multiplying the 490.8 lbs. per hour of hot water by the 100° rise.

49,080 Btu's per hour are needed to produce 1.0 gpm of hot water on this basis.

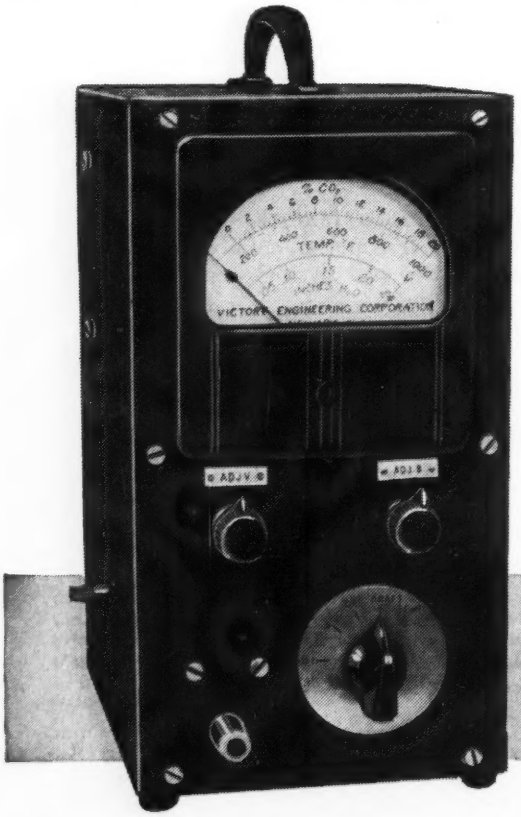
Figuring the peak actual efficiency of a boiler on an actual installation as 80% (this is *actual* efficiency, not *absorption* efficiency figured by deducting the stack loss from 100%), and the likely peak heat content of domestic fueloil as 139,000 Btu per gallon, .80 can be multiplied by 139,000 to arrive at a figure for the number of Btu actually available per hour as a result of firing a boiler at 1.0 gph. This comes out as 111,200 available Btu for firing 1.0 gph.

Divide this 111,200 by the 49,080 Btu needed to heat 1.0 gpm of hot water, and the answer is 2.27 gpm. That is, a boiler actually working at 80% real efficiency and fired at 1.0 gph can produce 2.27 gpm of hot water continuously, 100° rise basis.

As counting on 80% boiler efficiency may be stretching things for even the most modern installations, we still like the thumb rule given at the start.

Tankless Coil Rattles

Partly because he makes a fetish of having things run right in his house and partly because friends who visit him heat with gas and stress silent operation as a unique advantage of their gas-fired boilers and furnaces, this heating engineer left no stone unturned in quieting his oilburner after he moved into a new house. His original firebox, perfectly good except that it wasn't the kind that gives cleanest and quietest combustion, was replaced at a cost of $65 by a last-minute firebox that really made the flame silent. A dozen different nozzles were tried before a clean, bright flame with high CO_2 readings and low smoke readings was obtained. The draft regulator location was switched to prevent flame sound from escaping through it, and sound-deadening of the smokehood was accomplished by installing an inner lining of asbestos board. Steps were taken to avoid the slightest sound from the fuel unit, and to line up the burner's



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TROUBLE FREE

Complete Combustion Testing

New-Revolutionary

CO_2 Analyzing Elements *(Sealed in Glass)*

SINGLE METER — All readings on one dial
Constant accuracy in service use.

3 IN 1 OPERATION

CO_2 INDICATOR
STACK THERMOMETER
DRAFT GAUGE

COMPACT PORTABLE
Weighs only 7 pounds

Service Free — Simple to Operate
Economical to Buy
Ideal for testing to F.H.A. requirements

Victory ENGINEERING CORPORATION
744 Broad Street, Newark, New Jersey

flexible coupling nicely so it would cause no sound.

Out of all this came a bad rattling in the steam boiler. Probably this was there to start out, says the engineer, and while at first it could not be heard because the burner and flame made louder sounds, making the burner almost silent caused it to be annoying.

Futile searches were made for parts loose in the boiler's combustion space, flue passages, and smokehood. The noise was of a type that could be caused by trembling or rattling of flue baffles, for example. All the boiler doors and door frames were checked and found tight.

Then the engineer noticed that with the boiler steaming the noise continued for a few minutes after the burner was turned off. He knows now, he says, that movement of the tankless heater coil, which extends from one end of the boiler to the other and which is located just under the waterline where steam bubbles pass up through it, is making the rattling noise. Unfortunately, the rattling proved to be the same with the boiler waterline unusually high or unusually low. There seems to be no other way to near-silent operation of the boiler except to remove the tankless coil and fasten its lengths of tubing rigidly to each other. The job can't be done easily. Pipes must be cut and threaded as there are no unions in water lines near the coil. But anyhow, says the engineer, the repair work may prevent the coil from developing leaks as it rattles around; the bumping is doing it no good now.

Constant Level Valves

A constant level valve of the type used between a gravity-feed oil tank and a pot type or wall flame burner is good for only a certain maximum head of oil on its input or tank connection. That means that if you locate the oil tank too high above the constant level valve, the greatest head of oil the tank puts on the valve, with the tank full, may cause the float-operated valve to stay open when it should close. On some jobs, this shows up as snapping-off on safety of the constant level valve; on a pot type burner job the service man finds the automatic valve off on safety and has to re-set it. On other jobs, not having the type of constant level valve that shuts off on

Numbers tell you . . . what the score is

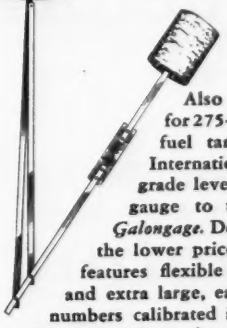
On the field, you can tell the situation just by looking at the numbers. Same way on a fuel tank.

The purpose of a fuel gauge is to tell people how much oil they have and how much oil they use. Home owners want to *know* these facts—not *guess*. They want to know them quickly, accurately . . . in terms they're used to dealing with.

Whether it's for the finest installation or a 55-gallon drum, we have a fuel oil gauge to do the job *better*. Here's a *team* designed to give you customer satisfaction and top performance with economy and efficiency. Write for complete details.

GALONGAGE The only gauge generally used that measures in gallons. Designed to meet the most exacting requirements and do credit to the finest installation. Comes fully assembled to save installation charges. Calibrated for each standard size 275-250 and 220-gallon tank with depths of 44", 42", 27" and 26", with 1½" or 2" tank openings.

INTERNATIONAL



Also calibrated for 275-gallon size fuel tanks is the International, a high grade lever arm type gauge to team with *Galongage*. Designed for the lower priced field, it features flexible float arm and extra large, easy-to-read numbers calibrated in eighths. Built oil-tight at the factory for immediate and easy installation.

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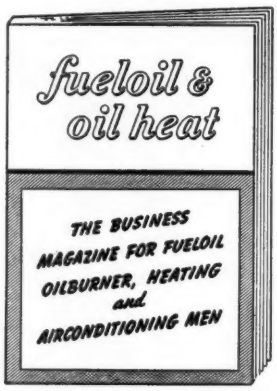

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OCTOBER ISSUE ADVERTISING FORMS CLOSE SEPTEMBER 25

Should we reserve adequate space for you?

fueloil & oil heat

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**Copies of the Fact Finders personal interview Readership Study of dealers are available if you want one. We are also preparing copies of their mail Study among oilheating Manufacturers. Very interesting.*

safety and then has to be re-set manually, the trouble shows up as an oversize flame when the burner starts. This is caused by too high a level of oil in the constant level valve or flooding.

What counts is the distance horizontally between the constant level valve and the top of the oil storage tank. This must not exceed a certain maximum. The maximum is different for different makes and models of valves.

A certain minimum distance is involved also, in the installation of constant level valves. If the bottom of the oil storage tank is not sufficiently high above the inlet of the constant level valve, insufficient oil will flow to the valve as the oil storage tank becomes nearly empty. The gph rate of the burner will drop, the fire becoming smaller and leaner, just before oil should be delivered. In a borderline case of this trouble, it helps to order oil ahead of time, when there's still quite a bit of oil in the tank. It helps also to keep especially clean any strainer or filter in the oil line or the constant level valve; slight clogging may make the trouble much worse.

Wiring Clock Thermostats

This burner dealer provides his new installations with a fused main switch located near the electric meter, and an on-off switch at the top of the basement stairs. Maybe it's just the characteristic of his customers, he says, but many of them turn off the switch at the top of the basement stairs when they go out for an evening or a weekend. The way he used to wire his clock thermostats, turning off that switch stopped the clock. He had plenty of service calls as a result, especially during the first year burners were used, when there is no charge for answering a call. After they stopped their thermostat clocks, the owners would call for a service man to set the clocks properly.

As an improvement that eliminates this type of service call, the dealer has switched to a different scheme of wiring. From his fused main switch at the electric meter, he runs a branch circuit to a 4" square box located near the burner. Electricity for the clock thermostat is obtained from this box and is not cut off by turning off the on-off switch at the top of the basement stairs.

J. A. MacDonnell has been appointed assistant to I. C. Jacobs, vice president and general sales manager, Gilbert & Barker Mfg. Co., West Springfield, Mass. He has been succeeded as manager of the oilheating sales division by *Harry J. Lanyon,* Newark, N. J., who enjoys a background of 25 years oilheating experience. *Harold K. Ricker* is to serve as Mr. Lanyon's assistant. Mr. MacDonnell joined the company's sales department in 1934 as branch engineer. For the past three years he has managed the oilheating sales division.

William S. Robards, manager, Minneapolis-Honeywell Regulator Company's Milwaukee, Wis., office, was killed in an automobile accident, which occurred early in the morning of July 29. Mr. Robards was returning home from the annual outing of the Wisconsin Oil Heat Association. He was reported alone in his car, and apparently fell asleep at the wheel, causing his car to leave the road and crash into a culvert. He is survived by his wife, Janet; three children, Janet 9, Thomas 7 and Roger 6 months.

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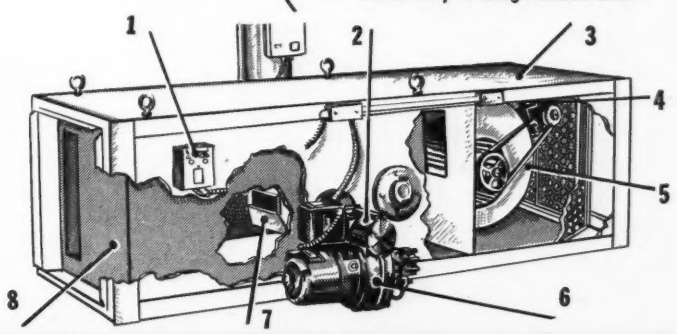

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Furnace Job Headaches

"I've called you in, Jim," the boss said as though he were threatening, "to explain why you spent half a day on one no-heat call. Your notes on the service slip make no sense. Spark failed, adjust tips, new nozzle, clean blower, rough start, set points again!"

"I'll be hornswoggled if I know whether I was too thorough or not thorough enough," Jim admitted. "Three hours seems a long time. Maybe I wasted time trying to rush so as to get off the job quickly."

There'd been a slight puff, Jim went on. The motor ran a few seconds and then the flame came on with a bang.

"My flame mirror showed the points badly carboned up, giving a little spark about 1/16" long. Figuring that's it, I took out the gun tube assembly, cleaned it, put the points flush with the nozzle instead of 3/16" ahead of it as they had been, and started the burner.

"The burner started smoothly when I tried it a dozen times. I was ready to leave. Then one last look at the flame convinced me it was too crooked, too smoky. Also the firebox stayed cold.

"Wondering if the nozzle was partly plugged, I used a stack thermometer to find out. Sure enough, I got only 420° instead of the 600° or higher which this model furnace gives when it's right.

"Figuring I should have stopped to look at the nozzle's atomizing slots instead of rushing so when I had the gun tube assembly out of the burner, I took out the gun assembly and checked the nozzle innards this time. Well, I started something, for I couldn't get a decent fire though I removed and cleaned the nozzle about five times. The flame stayed smoky and crooked. All this took over an hour.

"Then I did what I should have done in the first place. I installed a new nozzle. Boy, what a smoky flame I got! A stack temperature of 580° proved the new nozzle wasn't overfiring, so I looked further for trouble. Wide open, the air damper on the burner didn't give the flame enough air. Looking in at the burner's blower wheel with a flashlight, I saw the blades were tight plugged with lint and dust. Looked like a load of stuff out of the bag of a vacuum cleaner. The blower in that burner can't be cleaned without removing it, so 20 minutes went by with me struggling with wiring and tight nuts and bolts, taking off the motor to bring out the blower wheel. Then I wished I had with me a new blower, because half an hour went by while I cleaned and cleaned to make the old blower as clean as new. The junction box on the burner has three BX cables running into it, and after putting back the motor and blower I got the wiring mixed up a little and had to trace wires to make the connections right finally.

"The new nozzle and clean blower gave me a beautiful flame except for one thing. There was a bang when the burner started. This was just like the bum start given by the dirty points and short spark when I arrived, and now the points were clean and the spark was big and bright."

fueloil & oil heat Short Short Article on Burner Service

It dawned on him then, Jim went on, that his new flush setting of the spark points was causing the bumpy start. He'd found the tips 3/16" ahead of the nozzle and dirty, so had set them flush with the nozzle. Diags. 2 and 3 show the two settings.

"I knew now that when set properly 3/16" ahead of the nozzle, the tips had been covered with carbon only because the defective nozzle I found in the burner had been spraying oil sideways towards the points. So I took out the gun tube assembly again, set the points 3/16" ahead of the nozzle again, checked for smooth starting, and finally was ready to leave. Of course, I used my flame mirror to make certains the tips were clear of the oil spray and would stay clean.

"That's all, Boss," Jim concluded. "What did I do that I shouldn't have done?"

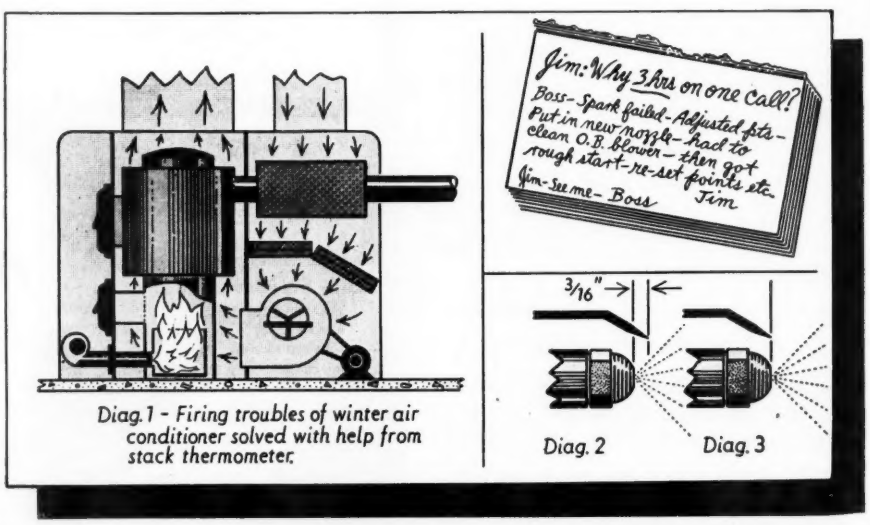
Looking bewildered, the boss said, "Maybe you should have installed a new nozzle on a three-year-old burner when you first arrived on the job. How do I know?

"But don't you waste any new nozzles from the stock room!" he roared.

Changing over to quiet, persuasive talk, the boss said, "Anyhow, Jim, please try to finish up calls like this in an hour or less. You know we can't charge this owner for your traveling time and three hours on the job. I know you'll cooperate."

Jim left the boss' office, but was back sticking his head in the door in two seconds.

"Boss, here's just one more thing," he called. "Got to go back on that job for an hour or two tomorrow. Got to tighten a little oil leak I noticed, change the element of the oil filter, oil the two motors, and install new air filters."

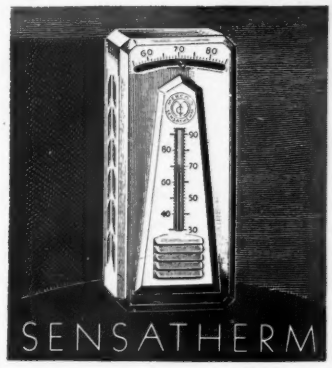

Jim: Why 3 hrs on one call?
Boss - Spark failed - Adjusted pts - Put in new nozzle - had to clean O.B. blower - then got rough start - re-set points etc.
Jim - See me - Boss
Jim
3/16"

Diag. 1 - Firing troubles of winter air conditioner solved with help from stack thermometer.

Diag. 2 Diag. 3

This account *of a three-hour srevice call gives an insight into why some burner dealers have gray hair. Service men have to decide whether to replace old nozzles at the drop of a hat, or spend time trying to make them perform properly.*

If they are,



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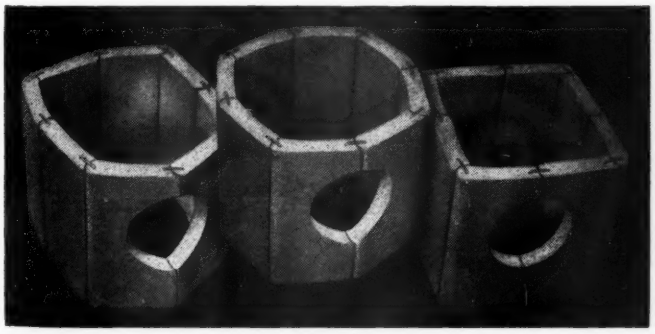

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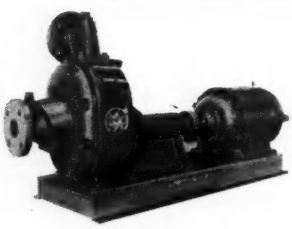
MARLOW CENTRIFUGAL PUMPS

For high capacity and high efficiency in pumping light liquids on flooded suction installations. Close and long-coupled models, sizes 1 to 4 inches, capacities 10 to 1000 GPM. Features include an easily renewable sealing ring at impeller inlet, deep-groove oversize ball bearings, and a John Crane dripless shaft seal. Motors from ½ to 30 HP. Explosion proof or fully enclosed.

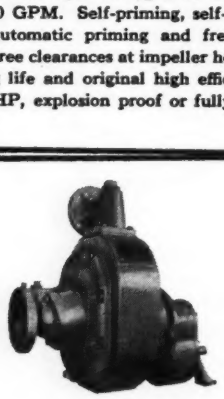
MARLOW SELF-PRIMING CENTRIFUGAL PUMPS

The only light-liquids pump for long, trouble-free service on suction lifts. Marlow Self-Primers offer high capacity and high efficiency with *automatic priming*. Suitable for underground storage or for transfer or loading operations. Close and long-coupled models, sizes 1½ to 10 inches, capacities 15 to 3500 GPM. Self-priming, self-purging design assures automatic priming and freedom from vapor lock. Free clearances at impeller help eliminate wear, prolong life and original high efficiency. Motors ⅓ to 60 HP, explosion proof or fully enclosed.



Marlow Type EL

Models also available for belt and engine drive and for high pressure service.



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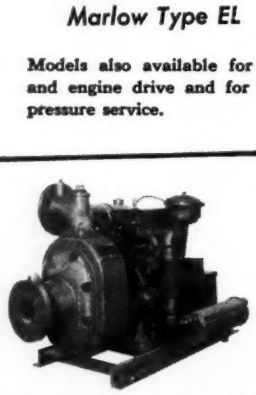

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Marlow Self-Priming Centrifugals for refueling or transfer, where mobility or stand-by operation is required. Sizes 1½ to 8 inches. Capacities 15 to 2000 GPM. 2- and 3-inch sizes available with electric starter and spark arresting muffler for tank truck service.

Wherever pump users gather you will hear the name MARLOW used as a standard of pump efficiency, trouble-freedom and long life. It will pay you, too, to standardize on the standard.

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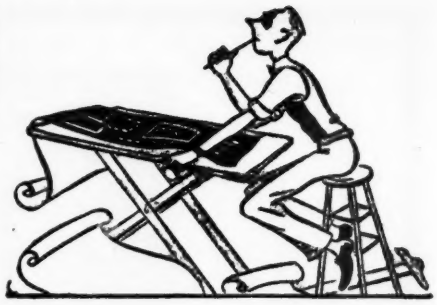
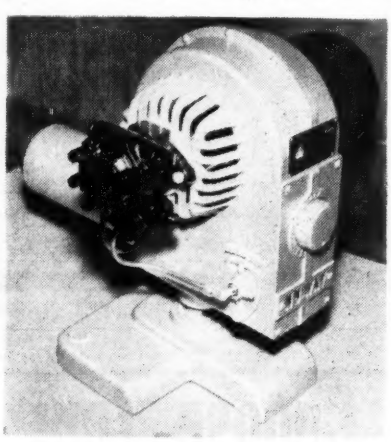


New Products

Nu-Way Model CO For Use With Catalytic Fueloil

DESIGNED to burn catalytically cracked oils is the Nu-Way model CO oilburner, available in two sizes, the CO-2 for capacities from .75 to 2 gph, model CO-6, from 2 to 6 gph. Incorporated into the burner is a new type of combustion head, described as eliminating operational troubles encountered in the past. The burner's housing is of sand cast aluminum, provided with a large rear opening for access to parts and an inspection port to check the flame.

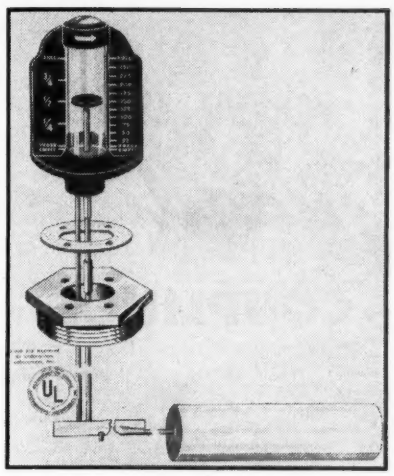


Two Nu-Way features, the shielded nozzle and positive air control, have been improved for use on the new models, the culmination of more than two years of research and experimentation. A flame control is operated by the dial setting of the nozzle position in the draft tube and the burner's transformer is equipped with a radio static eliminator.

Made by: Nu-Way Corp., 2416—4th Ave., Rock Island, Ill.

Mel Gauge Model C-100 Basement Fuel Tank Gauge

MODEL C-100, 4-way reading fueloil tank gauge is suitable for all basement storage tanks and furnishes a reading



which can be taken from a distance either in the front or rear of the tank. The gauge has raised figures, calibrated in fractions and gallons. It is guaranteed by the manufacturer to be leakproof and can be installed with or without oil in the tank. It features an all-metal float, and only two moving parts.

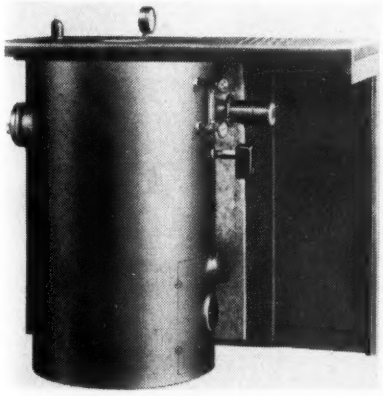
Available for tank depths from 22" to 24", 26" to 27", 42" to 44" and special sizes, opening with 1½" or 2" pipe threads, the gauge can be removed or replaced without removing the bushing.

Made by: Mel Gauge Co., P. O. Box 17, Station A, East Haven, Conn.

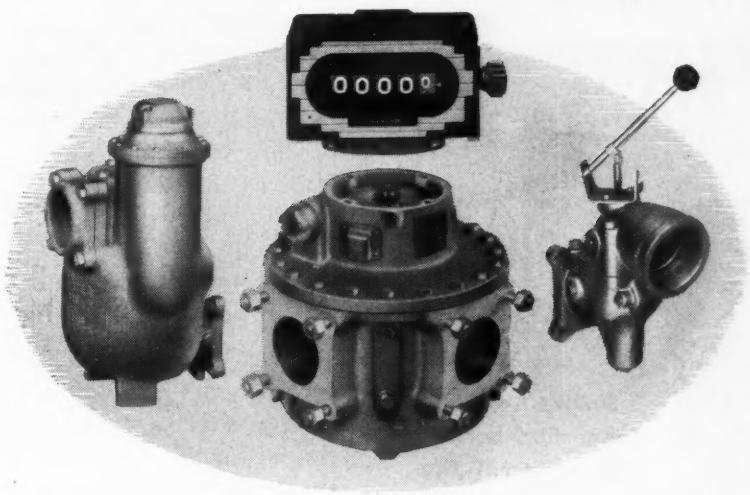
Portmar Steel Heating Boilers With Flush or Extended Jackets

SIX SIZES of Portmar round steel heating boilers range in capacity from 320 to 1100 sq. ft. of steam, 510 to 1760 sq. ft. of hot water radiation. Where space is at a minimum, flush jackets can be provided, with extended jackets available to enclose the burner, if desired. Firing rates for the oil models are recommended from 1 to 3 gph, with a copper tankless coil provided for domestic hot water supply.

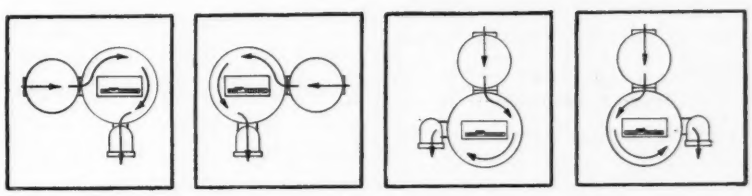
Eight steel tubes are employed in



"UNITIZED" construction



gives you all these:



You make your own selection of components to suit your particular requirements. Wide choice of counter, dial and printer combinations available plus variable ways of attaching inlet and outlet fittings. Rotor will revolve in either direction. You may assemble the "units" to fit your needs. The result is a compact installation with fast, accurate, dependable service.

Easy to install. Many combinations and arrangements are possible with Smith Truck Meters. Diagrams above illustrate the four most common. Meters can be changed from Right to Left Hand or Left to Right Hand. For specifications, dimensions, complete information, ask for Truck Meter Bulletin.

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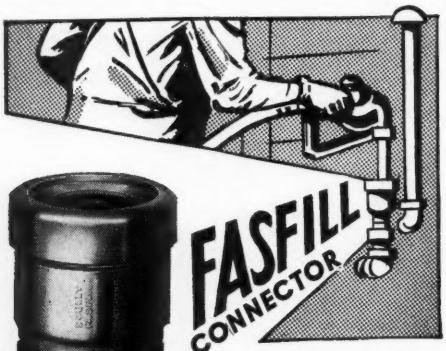

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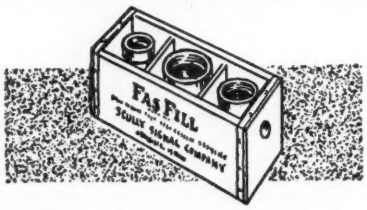
Just shove gun nozzle through opening of flexible diaphragm in FASFILL head and let 'er go. Casing wall holds gun in position.



Light weight 3-compartment box carries ALL connections needed for making up to 1¼", 1½" or 2" male or female fill pipe.

SCULLY SIGNAL COMPANY
76 First Street
CAMBRIDGE 41, MASS.

FASFILL®

model P320, the smallest size, with the number of tubes increasing to 26 for model P1100, the largest model. Built-in combustion chambers are standard equipment, with baffle plates built-in for increased heat extraction and low stack temperatures. The bonnet is removable to permit cleaning. Boiler diameters measure 20" for the smallest model, 24" for the next two sizes and 29" for each of the three largest units.

Made by: Portmar Boiler Co., Inc., 193—7th St., Brooklyn 15, N. Y.

Photoelectric Smoke Indicators Are Continuous Indicating Type

A NEW SERIES of smoke indicators announced recently indicate continuously the density of smoke passing through the stack and signal when the smoke exceeds a predetermined value. Fireye smoke indicating equipment consists of a light source, a photoelectric scanner and a control and indicator combined in a single housing. The light source and scanner are mounted on opposite sides of the stack and the indicator in any convenient location. Red and green jewel lights indicate excessive or efficient smoke conditions.

Made by: Combustion Control Corp., 77 Broadway, Cambridge 42, Mass.

Rega Oil Filters With Replaceable Cartridge

REGA oil filters, featuring cartridges that can be changed easily by removal of a thumb screw, are intended to be installed in the oil feed lines of domestic

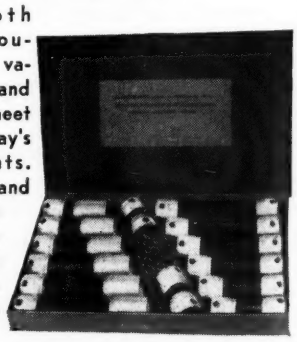
oilburners for the trapping of sludge and sediment. In operation, the oil flows upward into the filter, allowing dirt and water to separate. The filters are constructed so that it is impossible for the oil to by-pass the filtering element, while a 1½" sludge trap is incorporated

NOW USE 86% Guardian COUPLINGS

Yes . . . 86% of the nation's original equipment manufacturers of oil burners in the United States are using Guardian flexible couplings. This enviable position was earned through dependability, quiet operation and long life in millions of installations. Specially treated for oil resistance . . . nothing to lubricate . . . nothing to get out of order . . . easy to install. Guardian Flexible Couplings are available in the regular set-screw type and in the new extruded splined sleeve design, fitting the hub with a close .001 inch tolerance. Both types are supplied in a variety of standard sizes or to your specifications.

COMPLETE ASSORTMENT SERVICE KIT

Contains both types of couplings in a variety of sizes and bushings to meet 97% of today's requirements. Keep it filled and be ready to make the extra profits on flexible coupling replacements.



Guardian PRODUCTS CORP.
COUPLING DIVISION

Dept. F8, 1215 E. Second St., Michigan City, Ind.

Michigan City, Indiana

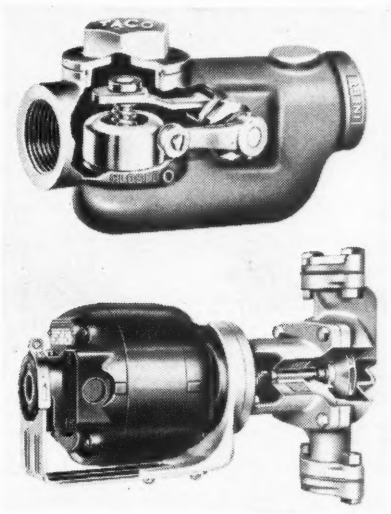
to prolong the life of the cartridge.

Made by: Rega Mfg. Co., 99 Mt. Hope Ave., Rochester 20, N. Y.

Taco Horizontal Flow Checks, HDH Hot Water Circulator

TACO horizontal flow checks have been announced in 1", 1¼", 1½", 2", 2½" and 3" sizes, to prevent hot boiler water from flowing to the heating system when the circulator is not running. They feature an accurately machined weight and seat, bronze spring cushions and working parts. Three position adjustment, open, closed and normal, is possible, with the seat cleanable by moving the adjustment lever up and down with the circulator running.

The "HDH" circulator for forced hot water heating systems is described as ideal for high capacity performance for



high resistance installations. Porous bronze bearings, rotary seals, cast bronze impeller and stainless steel shaft, rotatable body, two bolt interchangeable flanges and motors with overload protection are standard equipment. The circulators are supplied with ¾", 1", 1¼" or 1½" interchangeable flanges, designed to pump 20 gpm against a 10 ft. head.

Made by: Taco Heaters, Inc., 137 South St., Providence 3, R. I.

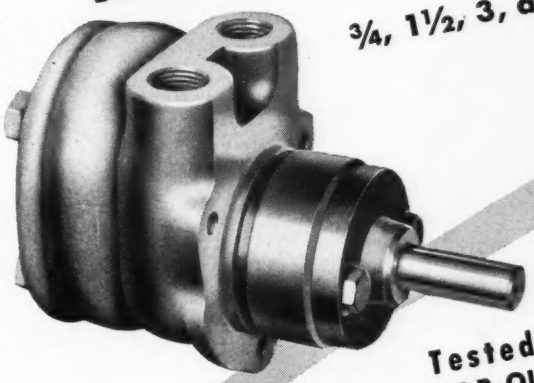
Morrison Adds Two Models Of Carry-All Truck Bodies

MODELS B-750 and B-910, illustrated, Carry-All all steel service and utility truck bodies, added to its line by Morrison Steel Products, Inc., Buffalo, N. Y., fit all standard ½, ¾ and 1-ton new and used truck chassis. Model B-750

Roper SERIES "K" Pumps

Efficiency Plus FOR INDUSTRIAL OIL BURNERS

¾, 1½, 3, and 5 G.P.M. Sizes



Tested and Approved FOR OIL BURNER SERVICE

Roper Series K Rotary Pumps meet the standards set up by Underwriters' Laboratories, Inc. and then some! These reliable pumps for oil burner service are available in either packed box or mechanical seal designs — with or without relief valve. The ¾, 1½, and 3 G.P.M. sizes are flange mounted . . . 5 G.P.M. size is foot mounted.

QUIET, DEPENDABLE OPERATION

Roper Series K Pumps are adaptable to such uses as pressure lubrication, hydraulic service, and transfer work pumping clean liquids at capacities up to 50 G.P.M. They are self-lubricated by liquid being pumped . . . handle total suction lifts up to 25 feet. Helical pumping gears are alloy steel. Driving gear is pinned to shaft and driven gear floats on stationary shaft. Sizes 10 through 50 feature venturi suction and discharge principle. You'll want complete facts on these durable, quiet-running Ropers, so send the coupon today!

SEE OUR CATALOG IN SWEET'S

ROPER Rotary Pumps

GEO. D. ROPER CORPORATION
769 Blackhawk Park Avenue, Rockford, Illinois

☐ *Please Send Catalog 950 and Bulletin 10*

☐ *Have a Roper Representative Call*

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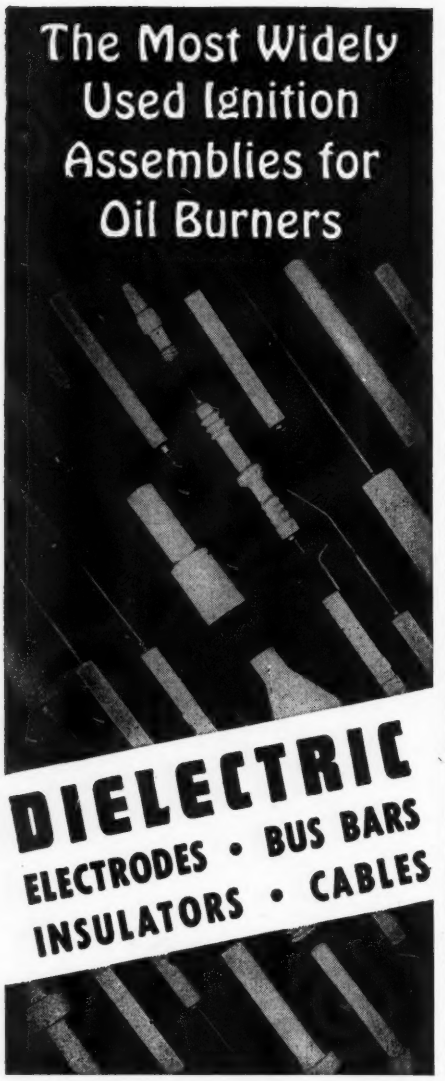
CITY_____

COMPANY_____



STANDARD AND SPECIAL ASSEMBLIES IN ALL TYPES AND LENGTHS

The majority of oil burners being installed or serviced today are equipped with Dielectric electrode assemblies . . . and for good reason—

1—They are made with the finest steatite insulators and electrode tips . . . in any designs to meet specific burner requirements.

2—They have all Underwriters Laboratories, Inc., approvals.

3—Standard assemblies are available for quick delivery.

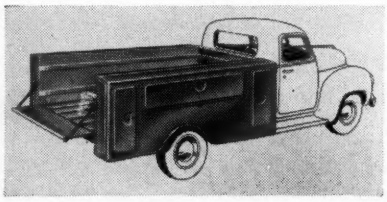
4—Assemblies with special insulator and electrode sizes and shapes can be made on short notice.

In addition, Dielectric high tension cable assemblies and Dielectric bus bars for transformer and electrode layouts are available for any practical burner hook-up.

Let Dielectric's complete, prompt engineering cooperation help improve your burner and expedite production. Write for bulletin.

DIELECTRIC
PRODUCTS CO., Inc.
125 Virginia Ave., Jersey City 5, N. J.
Boston • Philadelphia • Des Moines

has a 75" body, 32 cu. ft. compartment area and more than 25 sq. ft. of floor space; model B-910 a 91 5/16" body,



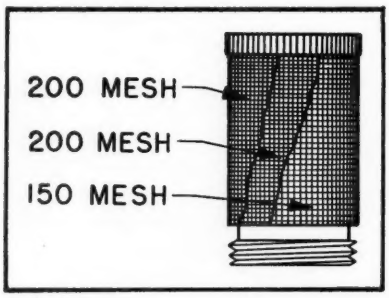
37¼" compartment area and more than 30½ sq. ft. of floor space. The 48½" width of a heavy-duty, offset-reinforced non-skid 16-gauge floor and extra wide compartments, set out over the wheels, provide extra space for bulkier loads.

Each type employs a center control dual latch locking arm, giving a weatherproof and weathertight closure, with individual cylinder locks on each door, all keyed alike. All parts are interchangeable and the bodies can be transferred readily from one chassis to another. Optional parts include overhead ladder racks, canvas tops, sliding metal roofs, material trays, shelves and side boxes. Specialized equipment, such as derricks, winches, pipe vises, reels and support jacks also can be furnished.

Made by: Morrison Steel Products, Inc., 601 Amherst St., Buffalo 7, N. Y.

Hago Three-Stage Strainer For Small Capacity Nozzles

AN ALL METAL, cleanable three-stage strainer has been announced, recommended for use on nozzles up to 1 gph capacity for the removal of small particles of foreign matter. Oil is filtered through two layers of 200 mesh and one of 150 mesh monel wire cloth. Strainer bodies are brass.



Made by: Hago Products, 1281 Springfield Ave., Irvington 11, N. J.

Sabanol Fueloil Treatment Disperses Sludge and Water

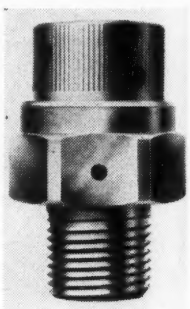
SABANOL, homogenizing fueloil treatment, is described as being non-toxic, non-corrosive and non-explosive, with a flash point in excess of 200° F. Its action disperses sludge and water in the oil, holding them in suspension, and, in addition, softens and then disintegrates adhering, existing sludge deposits.

Sabanol, an addition to a line of chemical compounds, including Red Seal Emulsion for heating systems, is a neutral, concentrated liquid, free of abrasives, benzene, petroleum solvents, ether, alcohol, carbon tetrachloride or chlorinated solvents. It carries a guarantee to be harmless to equipment and personnel.

Made by: American Sand-Banum Co., Inc., 9 Rockefeller Place, New York 20, N. Y.

Anderson Vent-Rite No. 10 Vent for Hot Water Systems

VENT-RITE #10 is an automatic air vent for hot water systems, featuring finger-tip control, requiring only a half turn of its knurled cap for fast venting. The #10 can be installed on any hot water heating system and at any location where air may accumulate.



Hygroscopic fibre discs, which automatically close to prevent passage of water, are employed, with a special metering screw insuring positive action, without leakage. The screw may be removed for cleaning. The Vent-Rite #10 is only 1⅛" long, overall, with rounded corners, and is individually boxed for counter display.

Made by: Anderson Products, Inc., 17 Tudor St., Cambridge 39, Mass.

Clearflow Micronic Filter For Use with Petroleum Products

CLEARFLOW micronic filters are offered in models from 35 to 200 gpm, with the largest model illustrated to show construction features and filter arrangements. For the jobber who desires to sell filtered fueloil without alterations to his present equipment, model AT-2 and AT-3, with capacities of 35 and 50 gpm, respectively, can be inserted ahead of the hose nozzle in a matter of seconds. The 35 gpm size weighs only 7½ lbs.

GLOBE

HOT WATER CIRCULATORS

Triple Seal!

Quiet!

- ★ Hardened Steel Shaft, precision ground
- ★ Water Seal—Hardened stainless steel face to carbon
- ★ Extra-long, OILITE, oil-impregnated Bronze Bearings
- ★ Flexible Neoprene Coupling
- ★ 1/6 hp Westinghouse or equivalent Motor

These quality components, together with GLOBE precision engineering, make the quiet, rugged GLOBE Hot Water Circulator the most outstanding circulator buy in its class.

Tested!

Guaranteed

Manufacturers of Low Water Cut-Offs and Controls for a Quarter Century

Send for Catalog

GLOBE CONTROLS CO.

81 WARREN STREET, NEWARK 2, N. J.

EXCLUSIVE TERRITORIES AVAILABLE

Because they're years ahead in steam generation . .

only CYCLOTHERM *STEAM GENERATORS*

Trade Mark Reg.

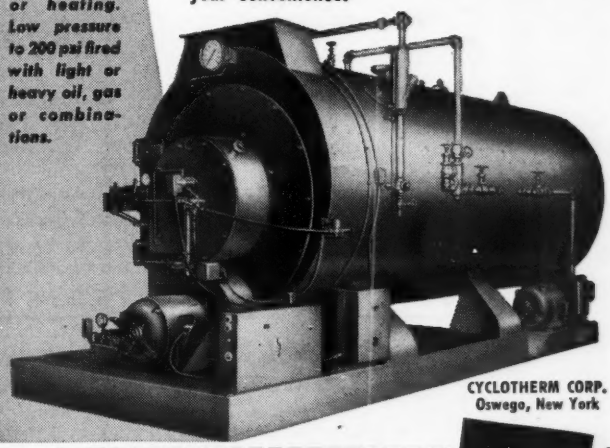
HAVE the REAL ANSWER TO *Low* GAS and OIL CONSUMPTION

✻**WHAT IS IT?** It's the modern scientific discovery of transferring heat at the highest degree of efficiency with a new low in fuel consumption. Principal factors of which are the cylinderized solid flame with its exclusive cyclo-motion power, designed to utilize the full potential of every particle of fuel . . . and the thin layer of air resulting from centrifugal force that's always between the flame and wall of combustion chamber. A combination to produce steam far in excess of conventional standards for measured heating surfaces.

SEND FOR *ALL* THE BIG REASONS

Learn how the completely automatic Cyclotherm with its unexcelled all-in-one package type features wipe out waste and excess costs. If you are planning a new or replacement boiler installation it will pay you to first get the facts on Cyclotherm. The coupon below is for your convenience.

***SIZES** available to fit your steam or water load for processing or heating. Low pressure to 200 psi fired with light or heavy oil, gas or combinations.*



CYCLOTHERM CORP.
Oswego, New York

CYCLOTHERM CORP., OSWEGO, N. Y.

Gentlemen: Please send me bulletin H-1 showing the advantages of Cyclotherm's new concept in Heat Transfer. Without obligation, of course. Dept. FO-9

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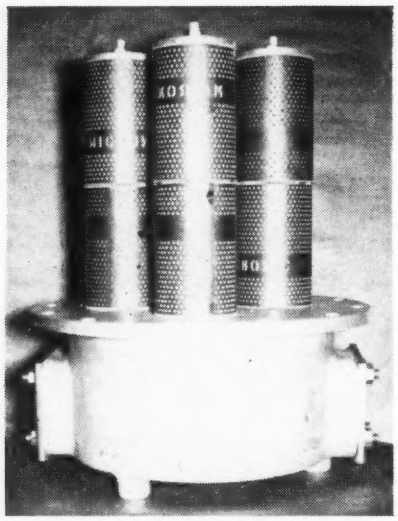
CITY ..... ZONE ..... STATE .....



Models TT-2 and TT-3, same capacities as the AT models, can be installed easily in any existing tank truck piping. SD models will handle capacities up to 200 gpm.

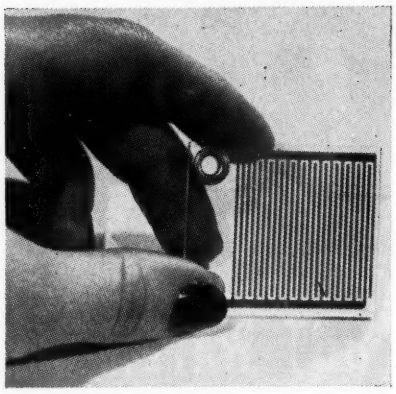
All "Clearflow" filters are lightweight aluminum construction for internal cleanliness, minimum weight and attractive appearance. Filtering is accomplished by micronic elements in a new arrangement.

Made by: Chas. W. M. Coote Co., Inc., 336 Gregory Ave., West Orange, N. J.

Honeywell Electronic Humidity Controller Extremely Sensitive

AN ELECTRONIC humidity controller recently announced is a sensitive instrument intended primarily for use where close control of humidity is essential, particularly industrial applications. Its sensing element, illustrated, is about the size of a matchbook cover and consists of a clear plastic base on which pure gold leaf conducting electrodes are mounted.

The controller operates on the principle that air conducts more electricity when moist than when dry, and the sensing element determines the amount of moisture in the air by measuring a minute change in electricity carried by a thin solution of chemical salts which coats the element. The change is amplified through electronic tubes to operate equipment to add or remove moisture from the air, and the controller also can be connected to indicating and recording instruments. The company is continuing to manufacture other humidity



controllers for domestic application, using elements of blond hair.

Made by: Minneapolis-Honeywell Regulator Co., 2753—4th Ave. South, Minneapolis 8, Minn.

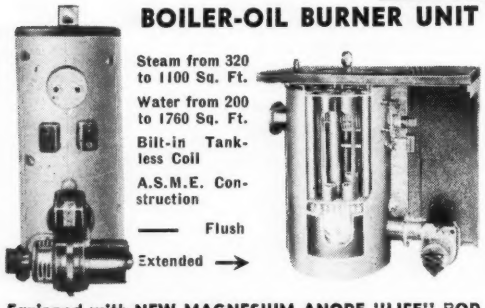
Marlow Truck Pumps For Service Up to 50 Gpm

TWO NEW MODELS of tank truck pumps announced recently have been designated models 12HG and 14HG, for service where required capacity does not exceed 50 gpm. Both are self-priming centrifugal, power take-off pumps and are supplied with 1½" x 1½" and 2" x 1½" female threaded suction and

DELTA America's Best Buy in AUTOMATIC HEATING

and YOUR BEST BUY TOO!

BOILER-OIL BURNER UNIT



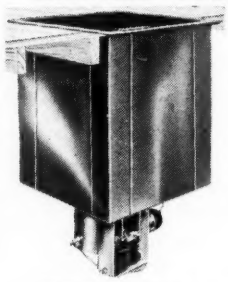
Steam from 320 to 1100 Sq. Ft.
Water from 200 to 1760 Sq. Ft.
Bilt-in Tankless Coil
A.S.M.E. Construction
—— Flush
Extended →

Equipped with NEW MAGNESIUM ANODE "LIFE" ROD —protects boilers against corrosion

CONVERSION OIL BURNER

Available from ¾ to 16 GPH

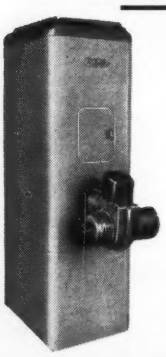
OIL-FIRED FLOOR FURNACE



FORCED DRAFT

- Fully wired and assembled
- Floor area only 2' x 2'
- 50,000 BTU Commercial Standards
- Smokeless-Sootless Burner

THE LINE THAT'S BUILT RIGHT AND PRICED RIGHT!



FORCED WARM-AIR OIL UNIT

- Flange-mounted oil burner
- Durable—Efficient twin-heat exchanger
- Pre-cast Bilt-in combustion chamber
- Output 90,000 BTU's
- Large blower
- Factory assembled

THE DELTA LINE IS SOLD THROUGH LEADING JOBBERS FROM COAST TO COAST

•

Send for FULL DETAILS Today!

DELTA WALL FURNACE

WITH CIRCULATING BLOWER FAN

- Thermostat controlled
- All parts easily accessible for servicing
- Output 52,000 BTU's
- Factory assembled

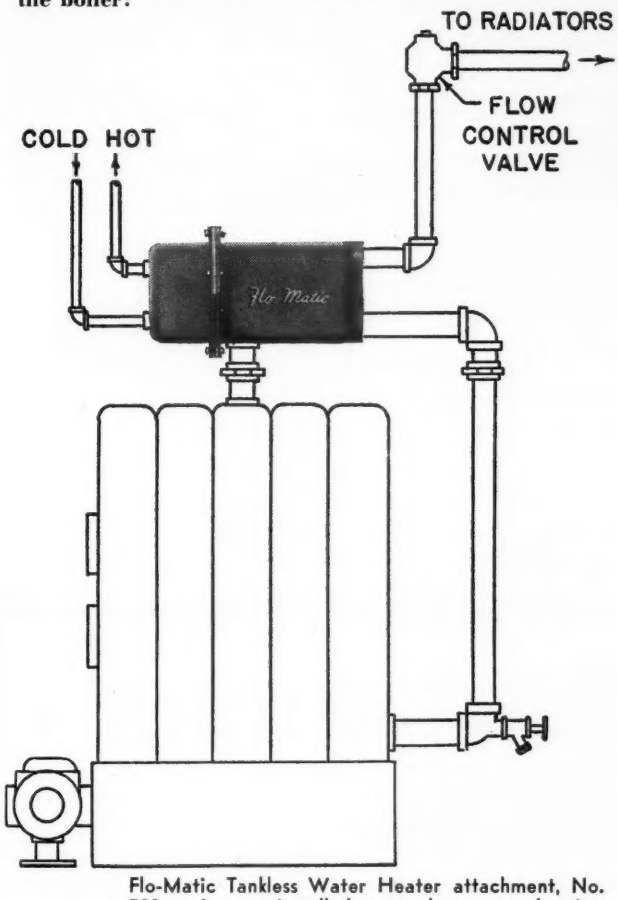
DELTA HEATING CORPORATION 85-07 NORTHERN BLVD., JACKSON HEIGHTS, N.Y.

ANOTHER MAJOR ADVANCE BY ALSTROM

FLO-MATIC

THE PERFECT EXTERNAL TANKLESS WATER HEATER

Customer satisfaction is assured with the Flo-Matic, an "up to the minute" scientific advance in water heating equipment, effecting greater economies and top efficiency. By means of *three scientifically arranged boiler-water connections*, the Flo-Matic automatically becomes the boiler header—*focal point* of the hottest water in the boiler!



Flo-Matic Tankless Water Heater attachment, No. 500 series, as installed on a hot water heating system, showing the three connections.

GUARANTEED PERFORMANCE ON *EVERY* JOB FOR *EVERY* TYPE OF BOILER

- **Cannot trap air**
- **Simplified piping arrangement reduces installation cost**
- **Generous spacing between copper tubes permits boiler water to circulate freely through the heater, and prevents sediment deposits**
- **"Counter-flow" heat exchange gives maximum efficiency**
- **Cast Iron Shell is ruggedly constructed, precision machined and attractively finished**
- **Domestic water passes through rust-free copper tubes and bronze water connections**
- **Undiminished boiler water circulation after years of service**

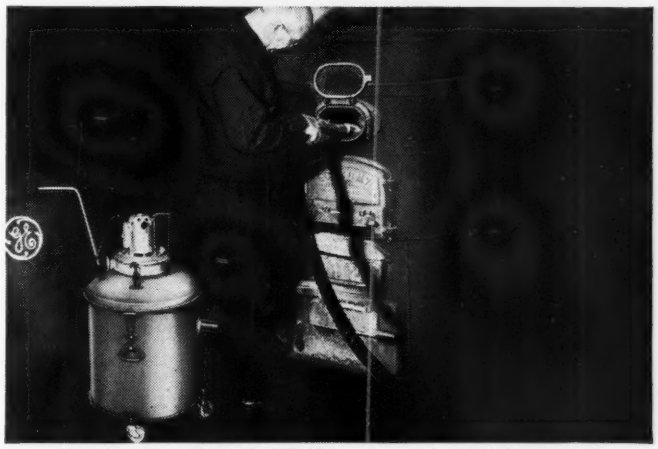
WRITE FOR PIPING DIAGRAMS SHOWING IDEAL HOOK-UP ON STEAM SYSTEMS

Sold through jobbers only!

Mfrs. of: *VACUUMATIC
"the world's fastest water heater!"
***REG. T.M.**

THE ALSTROM CORPORATION
790 East 176 Street • Bronx 60, N. Y.

Here's Modern Equipment to MAKE FURNACE-CLEANING CALLS PAY OFF!

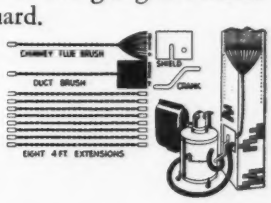


G-E AVI-F908 FURNACE CLEANER a Powerful BLOWER-SUCTION Machine—engineered to do the job Quickly, Thoroughly and at Low Cost

This easy-to-handle, high-vacuum cleaner (1 full h. p. AC-DC; 43" water lift; weight only 51 lbs.) makes a hit with clean-up crews . . . steps up their productiveness . . . leaves boilers and cellars cleaner.

Power unit is readily removed from tank and converted into a powerful BLOWER, by removing bag and substituting special coupling and guard.

G-E CHIMNEY-CLEANING AND AIR-DUCT EQUIPMENT For Use with Model AVI-F908 ▶ Furnace Cleaner



Another ingenious contribution to speed clean-up jobs is the G-E Chimney-Cleaning Set. This equipment brings down the soot and gets it into the machine with a minimum of muss and fuss.

Revolving handle and vacuum hose fit through special shield which keeps falling soot from escaping into the cellar. As shown, set includes Shield, Crank, Chimney Flue Brush, Duct Brush and eight 4 ft. extensions.

YOUR FIRST STEP **toward Lower Furnace Cleaning Costs and MORE Satisfied Customers is taken when you mail coupon below for this new G-E folder**

Furnace and Boiler Cleaners

GENERAL ELECTRIC

GENERAL ELECTRIC COMPANY, Dept. 22-1624
1285 Boston Ave., Bridgeport 2, Conn.

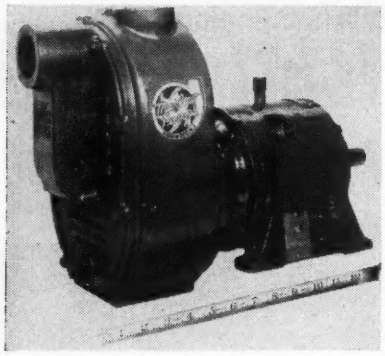
Certainly, I'm interested in more efficient Furnace Cleaning Equipment. Send the G-E Folder by return mail.

Name.....

Firm.....

Address.....

City..... Zone ..... State .....



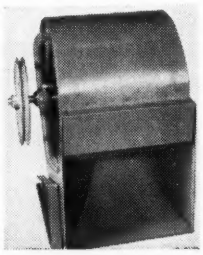
discharge connections. Smaller in size than previous models, these operate at pressures up to 35 lbs. psi and measure 17½" x 8½" x 12¼" overall.

Either may be mounted under the tank truck and connected to the power take-off, and both have a newly-developed, self-lubricating shaft seal. Required input speed is low, a 600 rpm input speed developing an impeller speed of 3000 rpm. The pumps may be shut off partially or completely while operating, without using by-pass lines or relief valves.

Made by: Marlow Pumps, 596 Greenwood Ave., Ridgewood, N. J.

Viking Announces Blower; Motor Mount for No. 413

THE NO. 139 Small Blower Assembly has been designed for installation in furnaces or air conditioners where the width is limited and where high pressure air and lower air volume are desired. The blower wheel is 13" in diameter, the same as the No. 1312, but is 3" narrower. Where there is high heat resistance in the system, or restricted areas over heat exchangers, the No. 139 overcomes such resistances with its larger diameter wheel building up the necessary air pressure. Also, the high tip speed of the wheel produces this pressure of operation not possible with smaller wheels.

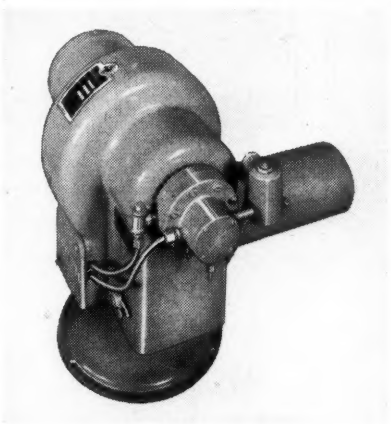


The motor mount for the 413 Blower Package is fastened to the blower with wing nuts so that the blower can be attached to the furnace before setting or wiring the motor. After attaching the motor to the mount and attaching wire leads, the assembly is placed on the motor, fastened with the wing nuts, the pulley belt placed on the shaft and the blower is ready to operate. Adjustable slots permit alignment of the belt and adjustment of the tension without tools.

Made by: Viking Air Conditioning Corp., 5600 Walworth Ave., Cleveland, Ohio.

Weatherall Low Pressure Burner Fires Up to 2½ Gph

WEATHERALL'S low pressure burner is the standard AL model, with a new air-oil pump and nozzle assembly. The low



NEW OILHEATING BOOKS •

INSTALLING THE DOMESTIC OILBURNER

This is the first practical guide on oilburner installation. It contains the most significant articles from FUELOIL & OIL HEAT that cover all phases of installation step by step. It is 8½ by 11 inches and contains 64 pages. Illustrated with numerous diagrams, charts and photos.

$1.

LOW PRESSURE BURNERS

Only book other than manufacturers' manuals that gives a full picture of low pressure burner principles of operation and construction—Winkler, Oil-O-Matic, G. E., Hart, Hev-E-Oil. Skeletonized diagram of each make of burner makes them more understandable. The new booklet is 8½ by 11 inches, contains 20 pages.

$1.

OILHEATING SNAGS

This book gives the solutions to many of the Everyday Snags that annoy you in installation and service. We've been working on them for years. They are all simple and practical answers to the most common goat-getters on jobs. It's an 8½ by 11 inch book of 64 pages.

$1.

HEADING OFF TROUBLE IN DOMESTIC OILHEATING

This book contains articles about the most important precautions to take in installations and service and thereby cut down the number of service calls. The selection is about those things which give the greatest amount of future trouble for service men. A highly practical compilation of pieces from FUELOIL & OIL HEAT. It's a 64-page book 8½ by 11 inches.

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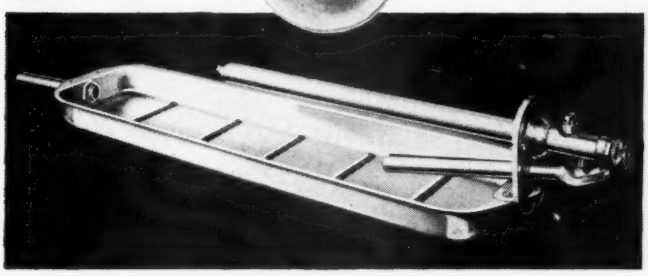
HEATING PUBLISHERS, INC.
232 Madison Ave., New York, 16

EACH DROP OF WATER VAPORIZES AS IT HITS HEATED PAN!



THERMO DRIP *Automatic* HUMIDIFIER

Water drips—AT PRE-SELECTED SPEED—into fast-heating, stainless steel pan. Drip feed principle gives almost immediate vaporization—makes a much more efficient working humidifier.

There is never a stagnant pool of water to reheat before vaporization begins—only a thin film of water ever forms in pan.

These features assure superior performance at LESS COST!

SUPER-SENSITIVE THERMOSTAT
Fool-proof. Starts or stops the flow of water according to bonnet temperature.

OUTSIDE SCREW ADJUSTER
Easy to regulate. Fingertip control.

12 PAN SIZES
Installs quickly—easily in every type warm air furnace.

1 KIT TO PURCHASE
NEW, IMPROVED AIR-TIGHT VALVE ORIFICE
Has positive seating action.

DRIP FEED PRINCIPLE
Water does not spray or run—Passes through funneled orifice.

WRITE TODAY FOR *FREE* LITERATURE. DEPT. F-9

Automatic Humidifier Co.
CEDAR FALLS, IOWA

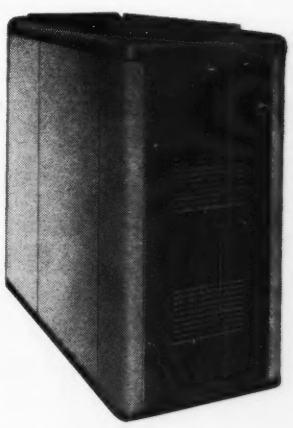
Rybolt IS LOW PRICED Measured by Length of Service

A heating unit is a long-term investment. As such the initial purchase price is a matter of relatively small importance to the consumer.

What counts is the number of years of satisfactory service enjoyed by the consumer. Considered on this basis the complete Rybolt line of oil, coal and gas-fired equipment is remarkably low priced because it is engineered and built to give long, dependable service.

No detail of material or workmanship that will improve quality is sacrificed to attain a temporary price advantage. For more than 35 years Rybolt has maintained a high standard of quality that insures long years of better heating efficiency, economy and dependability.

★
Rybolt Oil-Fired Winter Air Conditioner
★



Completely automatic, the Rybolt Oil-Fired Winter Air Conditioner offers unusually convenient and dependable heating service. The burner, designed by engineers who have specialized in oil burner construction for more than a quarter century, is highly efficient, quiet, easy to service and practically trouble-free. Fully enclosed in attractive two-tone gray baked enamel cabinet. Four sizes, BTU at register, 85,000, 115,000, 150,000, 200,000. There is also a compact Hi-Boy unit, 85,000 BTU.

WRITE for Attractive FOLDER Giving Full Details.

THE RYBOLT HEATER COMPANY
619 MILLER STREET • ASHLAND, OHIO

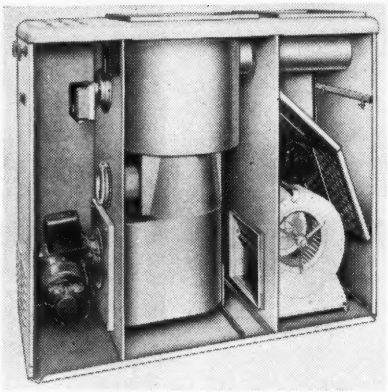
pressure air-oil fuel unit permits the burner to operate at gallonage rates as low as ½ gph, with firing rates up to 2½ gph possible by changing the oil volume with an outside adjustment and moving the manual air shutter. An electric solenoid valve is supplied on the suction side of the fuel unit.

The air pump is a standard vane type pump; the oil pump is a variable flow positive displacement metering pump. An air atomizing type nozzle is furnished, with large slots and orifice to prevent clogging or plugging. Air and oil flow to the nozzle through separate lines and are mixed at the nozzle.

Made by: Weatherall Engineers, Inc., 387 Charles St., Providence 4, R. I.

Hart Heat Furnace-Burner Units Include Gravity and Forced Air

A LINE of Hart Heat furnace-burner units includes those with gravity and forced air circulation, Hi-Boy and Lo-Boy models. Four Hi-Boys, intended for installation in utility rooms, range in capacity from 75,000 to 95,000 Btu/hr output at the bonnet; Lo-Boy models range from 80,000 to 148,000 Btu/hr



bonnet output. The Lo-Boys are available in three models with pressure oilburners, four models with vaporizing oilburners and two with gas burners. Gravity models are available with bonnet ratings ranging from 52,500 to 90,000 Btu/hr.

All models feature a conical primary drum heating element of heavy gauge steel, with large, clear space for warm air travel. Forced air circulation models include humidifier, filters and automatic controls. The gravity models also feature automatic operation, with humidifiers available as optional equipment.

Made by: Hart Heat Div., Avery Farm Machinery Co., 2006 South Washington St., Peoria, Ill.

Five Sizes of Mar-Coil Silencers for Water Hammer

FIVE SIZES of Mar-Coil silencers have been developed to prevent water hammer on tankless heaters, pumps and similar applications. Types A and B are ½" in diameter; type C, ¾"; type D, 1" and type E, 1¼". They provide cushions of 9, 17, 33, 55 and 100 cu. ins., respectively.

The silencers are made of polished brass and copper and are installed in an upright position, requiring no adjustment. It is recommended that they be installed as close as possible to the fixture that hammers.

Made by: Mar-Coil Heater Co., 200 Paterson Plank Rd., Union City, N. J.

V2-100 Skinner Solenoid Valve for Oilburner Use

THE V2-100 solenoid valve is designed as a drip eliminator or shutoff valve. It is a two-way, normally closed valve, with a maximum pressure rating of 125

SOMETHING NEW!
SOMETHING NEEDED!
DIRECT CONNECTION between oil tank or drum and tube line to heater or furnace, has given this NEW, specially designed Leggitt Oil Tank Valve soaring sales. It is something much needed in thousands of homes to eliminate the usual leaky "make-shift" way of connecting heater to tank. This ALL BRASS VALVE with brass seat is of finest quality in construction and material and is a very saleable and fast moving item.
Always look to Leggitt for the newest in valves, filters, fittings, etc. — the BEST in BRASS at the MOST REASONABLE PRICES! Whether your order is large or small it will receive the same prompt and careful attention.
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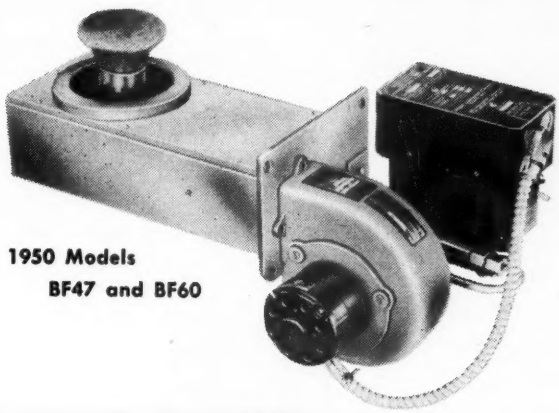
The KENT Double Suction FURNACE CLEANER
is Built to Last . . . Fewer Breakdowns . . . Longer Service.
● Low center of gravity, less chance of tipping!
● No outside dust bag! No dust passes through fans!
● Live electric outlet at switchbox for extension light!
For easier carrying cleaner separates into 2 parts (as shown).
CLEAN WITH KENT EQUIPMENT
The KENT Co., Inc. ● 434 Canal Street ● Rome, N. Y.

THE BRIGHTEST STAR OF THEM ALL for small homes projects



1950 Models
BF47 and BF60

KRESNO-STAMM *Ball Flame* OIL BURNER

The demand for the Kresno-Stamm "Ball Flame" mechanical draft burner by furnace manufacturers is growing by leaps and bounds—

- ***Because*** **... the small home requiring *less than a gallon* of oil per hour for heating offers great opportunities for big volume sales today and for many seasons to come.**
- ***Because*** **... no other type of oil burner can match this modern, compact burner for low cost, efficient operation, and fuel savings.**
- ***Because*** **... the Kresno-Stamm "Ball Flame" is the outstanding, completely packaged, mechanical draft, small oil burner, especially designed to meet furnace manufacturers' needs.**

The Kresno-Stamm "Ball Flame" is a truly engineered, proven burner, not a makeshift, not experimental. Many thousands are in use all over the world for large and small housing developments and for conversion. Dealers and contractors everywhere have recognized the Kresno-Stamm "Ball Flame" Burner as "standard," and look to manufacturers to incorporate them in the small furnaces they buy.

Let us tell you about the "Ball Flame." Write today.

Kresno-Stamm "Ball Flame" Oil Burners are patented in U.S.A., Canada and many foreign countries.

KRESNO-STAMM
Since 1927

KRESNO-STAMM MFG. CO. (America) Inc.
PALISADES PARK, N. J.
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1452 Drummond Street • Montreal, P. Q.

IT PAYS

to recommend and install

Klemm FUEL OIL FILTERS

Equipped with CHEMISTONE the original Controlled Porosity Element

MODEL FF 430G with "Hi" Tensile glass bowl.

On every service call, make it a point to suggest a Klemm Fuel Oil Filter as the best way to insure an *uninterrupted* flow of oil to the burners. *It traps dirt, sediment, water and other foreign matter.* All your customers need this protection. Klemm Filters are low-priced, dependable and highly efficient. You profit on each sale *and eliminate the cause of many unnecessary emergency calls.*

There are other filters but none with *Chemistone!*

HERE'S WHY KLEMM CHEMISTONE FILTERS SELL FASTER

Streamlined **. . . lots of eye appeal—a carefully designed filter that looks right with the finest installation.**

Engineered **. . . Scientifically engineered to give 100% filtration under all conditions. Easy to clean—no tools or wrenches needed.**

Packaged Right **. . . Put up in dealer cartons of 12 each or, assorted. Stocks easily . . . ships safely.**

Priced Right **. . . Superior in action, it's priced for quick sales. You'll find it doubly profitable to push Klemm filters.**

NOW A CHOICE

MODELS FF 430G, FF 401G with "Hi" Tensile glass Bowls
MODELS FF 430*, 401* with metal bowls

*listed for reinspection with Underwriters Laboratories

Write today for full information!

Klemm
AUTOMOTIVE PRODUCTS COMPANY

1718 Damen Avenue **Chicago 47, Illinois**
Export Division: Guiterman Co., Inc., 35 S. Williams Street, New York 4, N.Y.

NOW!

IS THE TIME TO EQUIP YOURSELVES WITH

*TANKIT

Replace the tank at your convenience

Instantly stops a fuel oil tank leak

(Standard Tankit)

In just two minutes the steel band can be placed around the tank, the oil resisting adjustable sliding patch placed over the leak, and tension applied by the screw. The leak stops! "SIMPLE BUT POSITIVE!" Packaged in metal containers, Tankits can be used again and again.

NEW!

DeLUXE TANKIT

With Giant Swivel Seal

(covers 18 sq. inches of tank area)

Can be used on porous tank areas as well as on ordinary leaky tanks.

(Is applied with two bands and locking devices —two kits in one including Giant Seal.)

List Price
$3.00 ea., lots of 1 or 2
$2.75 ea., lots of 3 to 11
$2.50 ea., lots of 12 or more
DeLuxe Model—$6.75 ea.

Write for Nearest Distributor

Available at your supply house.
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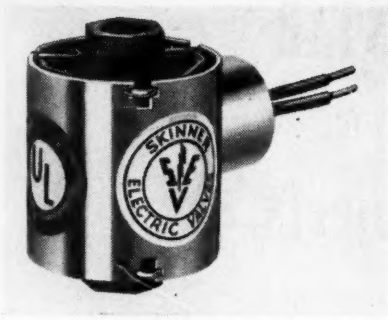
THE TANKIT COMPANY
Cedarhurst, L. I., N. Y.



psi. Its coil is continuous duty, rated at 10 watts maximum, with both ports 1/8" female NPT, conduit connection 1/2" NPT.

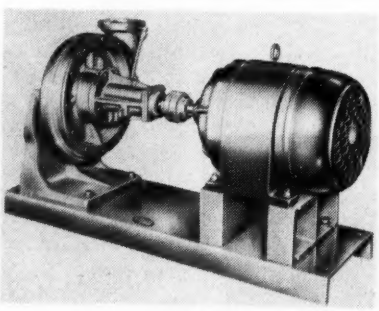
The valve employs soft synthetic seat and seals to prevent leakage, measures 2 1/4" high by 2-3/16" high, weighs 9 oz. It features spring loading for positive closing, steel construction without brazed, welded or soldered pressure joints and all parts corrosion-resistant plated. It may be used in any position.

Made by: Skinner Electric Valve Div., The Skinner Church Co., 141 Belden Ave., Norwalk, Conn.

Gilbert & Barker Centrifugal Pumps in Capacities to 450 Gpm

A LINE of centrifugal pumps recently announced is available in capacities from 50 to 450 gpm, designed to handle a wide range of petroleum and chemical products in tank car and transport loading or unloading, as well as for loading and barrel-filling purposes. The Roto-Prime line is furnished complete with base, electric motor, coupling, built-in check valve and mechanical seal.

Of single-stage, single-suction volute type, the pumps have no priming reservoir, self-priming being accomplished by a small variable capacity, vane type 1750 rpm positive displacement pump mounted inside the main pump housing, directly connected to the pump shaft. When air or vapor are present in the system at the start, or if there is loss of suction, the priming pump system goes into action. At other times it is in neutral position.

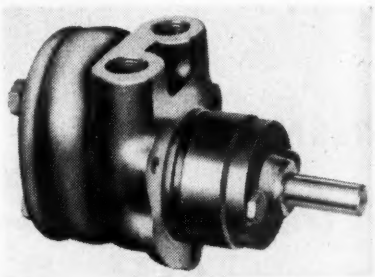


Made by: Gilbert & Barker Mfg. Co., West Springfield, Mass.

Roper Oilburner Pumps in Flange, Foot-Mounted Types

SERIES K Roper rotary pumps in 3/4, 1 1/2, 3 and 5 gpm sizes are particularly suitable for industrial oilburner service. Available in either packed box or mechanical seal designs, with or without relief valves, three models are flange-mounted, the 5 gpm size is foot-mounted.

These are slightly modified versions from the standard fitted series K pumps



of the same sizes and are identified by the letters "R" or "RV" stamped on the face plate casting and the name plate.

Made by: George D. Roper Corp., 470 Blackhawk Ave., Rockford, Ill.

Auburn Convector Units: Heating-Cooling Units

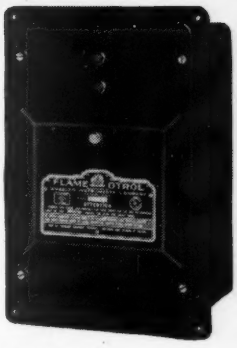
AUBURN forced air convectors consist of steel cabinets, containing one or two small squirrel cage type blowers powered by 1/150 hp. motors and twin Tru-Fin radiator tubes. Connected to hot water heating boilers, they may be used for heating in the winter and for cooling by air circulation in the summer. A single blower unit has a capacity of 12,000 Btu, the double blower unit, 20,000 Btu. The blowers pull air through a lower grill, over and through the Tru-Fin radiator and out the upper grill.

Also designed for use with a hot water heating boiler is Auburn's air conditioning and cooling unit, which operates with fresh air and water. Air is drawn through a large radiator by a Sirocco type, belt-driven blower, filtered and circulated. The units may be furnished for connecting to ducts or with directional louvers. Easily mounted by means of suspension rods, the units are serviced

instrumentality

DON'T PLAY WITH FIRE... specify

FLAME-OTROL



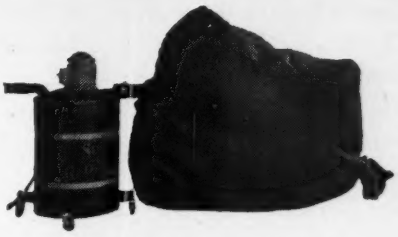
Approved by Associated Factory Mutual Laboratories

Underwriters Laboratories

You can't afford to have less than the best in combustion safety. Specify the new Wheelco 1300 Flame-otrol—a compact completely engineered package with all these advantages—Instantaneous protection... waiting period not subject to human error...shut down or repeat of "lighting-off" cycle at operator's discretion...automatic check of all internal components to insure safe "lighting-off"...selective and adjustable timing programs for ignition cycles, purging and preventilating...constant visual indication of burner system operation... .

Write for Bulletin F2-2, Wheelco Instruments Company, 868 W. Harrison Street, Chicago, Illinois.

wheelco *electronic controls*



How To Sell More Oil Burners

Nothing else gets you as close to the home owner's heating problem as a furnace cleaning service. There is a good profit in the work, which needs no special training or skill. Cleaning all kinds of plants puts you in touch with new plant prospects. Cleaning oil burners keeps your oil customers happy. Let us send you a Super Red Streak Furnace Cleaner for a 5-day FREE trial —keep what you make. Our FREE PLAN BOOK tells you how to operate a furnace cleaning service.

Ask your local supplies distributor, or write for complete data.

National Super Service Company, Inc.
1951 N. 12th St., Toledo 2, Ohio

SUPER SUCTION

SINCE 1911

"THE DRAFT HORSE OF POWER SUCTION CLEANERS"

ATLANTIC STEEL BOILERS

Scotch-Marine type, three-pass, wet base. Spiral baffles in the heavy-gauge, three-inch fire tubes assure the utmost in heat transfer.

Firing chamber is entirely surrounded by water and contains a special high-temperature refractory combustion chamber. De Luxe jacket—attractive hammertone finish.

Sizes from 400 to 3840 sq. ft. steam; 640 to 6144 sq. ft. hot water, E.D.R.

Write for full information today!

S. W. CORNER
24th and BROWN STS.
PHILADELPHIA, PENNA.

ATLANTIC STEEL BOILER COMPANY

NEW PREFERRED *Anti-Syphon* VALVE

APPROVED BY UNDERWRITERS' LABORATORIES FOR NO. 6 OIL

Here's a new and important development in anti-syphon valves ... Preferred's Type A Valve, which is the only valve available in these sizes approved by Underwriters' Laboratories for use with No. 6 oil, as well as with lighter oils. This angle type valve takes the place of an elbow when installed at the high point in the suction line, usually at the building wall, where the line drops to the basement floor.

- **Built-in dashpot eliminates chattering.**
- **The new Preferred Type A valve is spring-loaded and is available in 1¼", 1½" and 2" sizes for 5 or 10-foot head pressures.**
- **For Oils Up To No. 5—Valves C5 and C10 are available in ⅜" and ½" sizes.**
- **For Oils Up to and Including No. 5—Valves B5 and B10 are available in ¾" and 1" sizes. (1" size is built up from ¾" size with fittings.)**

PR 188

PREFERRED UTILITIES MFG. CORP.

1860 BROADWAY, NEW YORK 23, N. Y.

from the bottom and have been designed for use in homes, offices, stores and similar applications. For large installations a number of units can be employed.

Made by: Auburn Burner Corp., Auburn, Ind.

Utica Series '1' Boiler Designed for Oilfiring

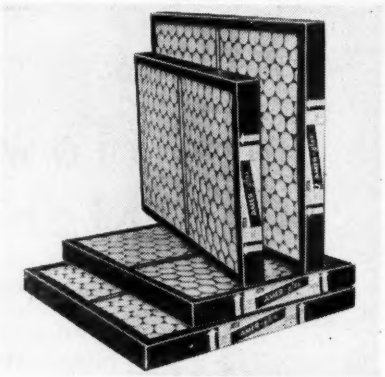
UTICA SERIES "1" cast-iron boiler has been designed for oilfiring in domestic applications. The 15-inch series "1" boiler is a west base unit, employing large 9" nipples connecting the individual sections and providing ample space for location of a tankless water heater.

The boiler, which permits complete circulation of the boiler water, is furnished with an extended jacket.

Made by: Utica Radiator Corp., Utica, N. Y.

Amer-glas Air Filter Is Replaceable Type

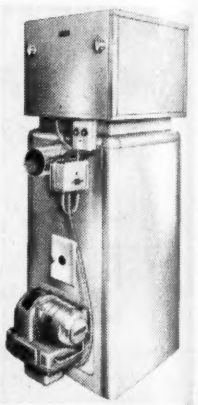
A REPLACEABLE TYPE air filter, the Amer-glas is recommended for forced air heating, ventilating and air conditioning systems. The filtering media consists of continuous strands of glass filaments, held together at each point of contact by a high-temperature plastic bond. The pad is sprayed with an odorless, non-flammable adhesive and placed in a fiberboard casing between metal grills.



Made by: American Air Filter Co., 125 Central Ave., Louisville 8, Ky.

Delco OPC-75HR Conditionair Is Vertical Warm Air Furnace

MODEL OPC-75HR is a vertical type, oil-fired warm air furnace featuring reverse air flow. The unit, with a capacity at the plenum of 75,000 Btu/hr, draws return air through either side of its blower-filter units, which is located atop the furnace unit, by a centrifugal type fan. The air passes through a viscous-treated filter for cleaning.



Designed especially for installation in ranch type houses, the unit also can be installed in closets or alcoves. A Delco-Heat gun type oilburner fires the OPV-75HR, which, when the thermostat calls for heat, warms air that circulates over the surfaces of a circle air radiator and heat transfer unit, with the air then distributed out of the bottom of the Conditionaire into the duct-

SILENT KORTH
OIL BURNERS

SILENT KORTH OIL HEAT

NOW DISTRIBUTED EXCLUSIVELY THRU PLUMBING & HEATING JOBBERS

- A SIZE FOR EVERY JOB. CAPACITY .75 TO 20 G.P.H.
- ADAPTOR FLANGES TO FIT BOILER OR FURNACE UNITS
- GE OR OHIO MOTOR
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IT IS SERVICE-FREE — IT STAYS SOLD!

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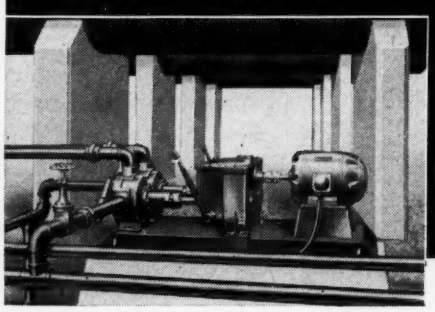
ECKHART MFG. CO., INC.
UNION, NEW JERSEY

SAVE SAFELY with the All-Weather VIKING TWIN-PUMP UNIT
(Underwriter's Approved)



Save the cost of a pump house with the new Viking all-weather totally enclosed twin unit. No protection of any kind required when you install one of these completely self-contained twins.

In addition, the bulk plant equipped with Underwriters' approved pumping equipment means added safety for both plant and personnel.

Save money, time, and space with completely safe equipment. Send today for free bulletin B400EE.

Viking PUMP COMPANY
Cedar Falls, Iowa

work. The unit uses a stainless steel combustion chamber.

Made by: Delco Appliance Div., General Motors Corp., Rochester 1, N. Y.

Line of ASCO Solenoid Valves Includes Models for Oil

THE COMPLETE LINE of ASCO solenoid operated valves includes models for use with gas, heavy and light fueloil and steam. They are basically of two types, those that are fully automatic and open and close when the solenoids are energized and de-energized and safety shut-off solenoids with manual reset.

Bulletin 8265 valves are normally closed, packless types satisfactory for gas and light grades of oil; the 8268 for gas and all grades of heavy fueloil. Both valves are equipped with continuous duty coils. Other types are the 8281, a packless, normally closed solenoid, the same as the 8268, but equipped with an adjustable metering device to regulate oil flow, and the 8291, a similar type, except that it includes an adjustable by-pass device. Three-way solenoid valves, used on heavy oilburners and arranged to by-pass the flow of oil back to the pre-heater when the burner is not operating, also are offered, as is the 8271 type for handling steam up to 250 lbs. at 450° F. This type is used principally for controlling steam for preheating fueloil.

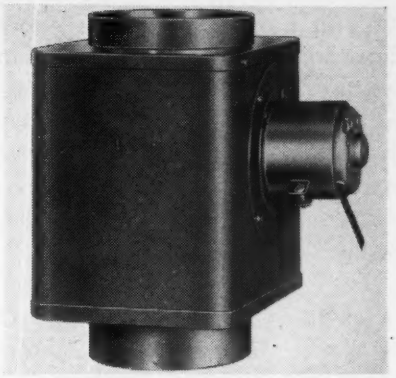
Manual reset, safety shut-off valves are available in the 8025 type, which are arranged to be opened manually and remain in that position as long as the solenoid is energized. The 8015 valves are arranged to close when the solenoid is tripped electrically.

All the valves are described as of heavy-duty construction, able to used for frequent service.

Made by: Automatic Switch Co., 391 Lakeside Ave., Orange, N. J.

Superflame Draft Booster Corrects Down Draft Troubles

SUPERFLAME DRAFT BOOSTER, developed to correct down draft conditions and provide positive draft under all conditions, is recommended for use on oil floor furnaces, oilheaters and oil water heaters. It is installed by slipping in between stove pipe joints and operates in



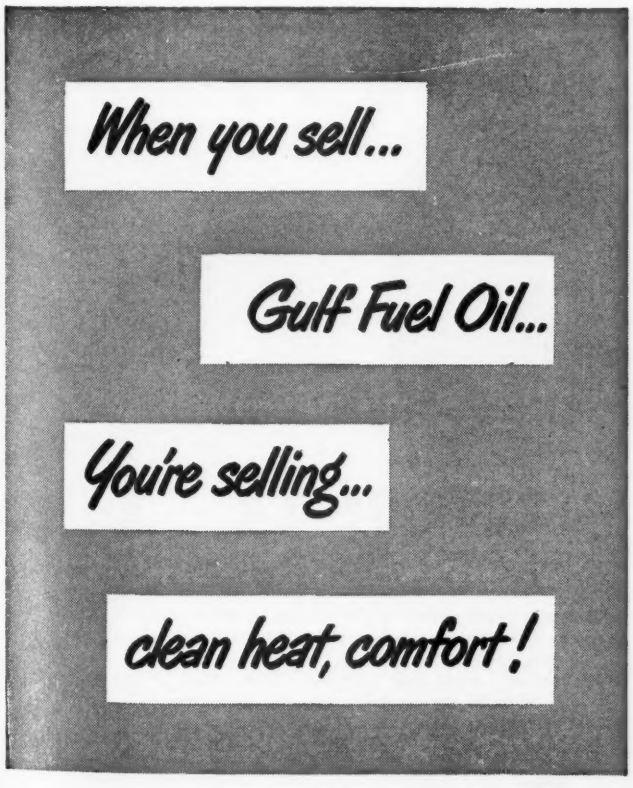
horizontal or vertical position. Equipped with an electric motor that requires no more current than a 20 watt bulb, it is delivered with a 4⅝" diameter impeller, turning at 1640 rpm.

Adaptable to 6" flue sizes, the booster has an overall depth of 10½", is 10" wide, with a 9¾" high casing.

Made by: Queen Stove Works, Inc., Albert Lea, Minn.

Duc-Pac Aluminum Simplified And Prefabricated Duct Systems

DUC-PAC aluminum ducts and fittings are the result of fifteen years' experience the manufacturer gained in operating



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GULF

From tank to oil burner...
ACCESSORIES by Buckeye

As one of the foremost names in the oil industry, "Buckeye" on your equipment signifies the ability of the equipment to *do* the job it was made to do . . . and to do it efficiently, economically and with a minimum of maintenance. These fittings, like the rest of the Buckeye complete line, live up to this reputation.

No. 4061 Angle Shut-off Valve
Needed on every line for emergency. Full capacity when wide open.

No. 4060 Globe Strainer
Sturdily and carefully made to clean oil before it enters the burner. Easily cleaned.

No. 4012 Angle Strainer
Widely used to eliminate impurities in the oil as it goes into the burner. Easily cleaned.

No. 4062 Globe Shut-off Valve
To close line for burner repair or replacement. Built for long life.

No. 79 and No. 444 Swing Check Valves
Disc lifts out of line of flow while pump operates.

Buckeye also manufactures Fill Caps, Fill Boxes, Sludge Pumps, Vents, Foot Valves and Bushings.

BUCKEYE IRON & BRASS WORKS, Dept. F
P. O. Box 883, Dayton 1, Ohio

his own sheet metal shop to provide ductwork for heating and ventilating systems he was installing. Packaged in stock sizes, or made to specifications, the ducts and fittings are formed from precision die-cutting of aluminum sheets, with resultant strength, light-weight and perfect fit.

Two types are offered, the type 10 simplified system and the type 20 step-up system, with type 30 trunk line fittings and type 40 stack fittings usable with either system. Type 50 fittings are miscellaneous items consisting of dampers, S-clips, drive clips, hangers, panning material and a hand bender. Sidewall and floor warm and cold air registers and grilles also are available.

Made by: Swett Bros., 78 Island Pond Rd., Springfield 8, Mass.

Retlif Adapters for Toilet Tissue Filtering Elements

ORIGINALLY developed for filtering lubricating oil in automobile engines, adapter plates, designed to enable the use of a roll of ordinary toilet tissue to replace elements in most makes of filters, also have been used successfully with oilburner filters. The kit that is offered contains top and bottom plates and all parts needed for installation.

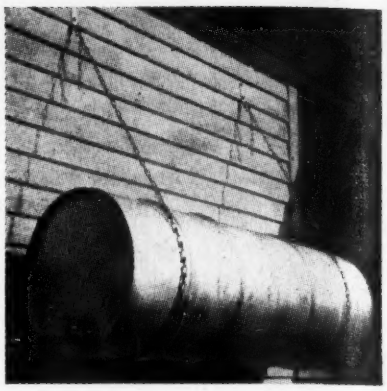
Ray Zenick invented the device, when he applied to oil filtering the fact that many scientific laboratories for years have used tissue paper as a filtering medium. A roll of ordinary toilet tissue is described as strong, pure and absorbent. In addition, it is uniform, will not release lint particles and has 10,000 sq. ins. of filtering surface.

Made by: Retlif Corp., 1239 North Highland Ave., Los Angeles 38, Calif.

"Hang-It" Tank Hanger for Single and Double Oil Drums

"HANG-IT" single and double oil drum hanger has been developed for space heater and other installations where small storage capacity is common. The device includes two 7' chains, in which the tank or drum is cradled, four hanger straps and "S" hooks, 8 lag screws, to secure the tank to a building wall. The chain and materials have been tested to withstand a load of more than 1300 lbs.

Underwriters' Laboratories, according to the company, has indicated that when



properly installed the hangers will meet the requirements of the National Board of Fire Underwriters' Code and the Forest Products Laboratory advises addition of the device will have no appreciable effect on the strength of the wall.

Made by: Clark Bros., 120 East Washington, Albia, Iowa.

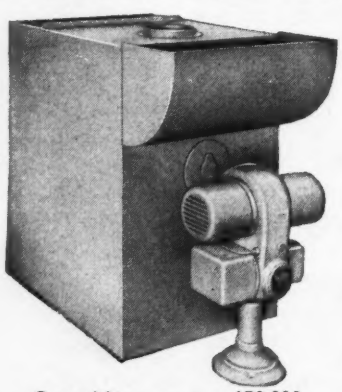
Tankit Adds Deluxe Kit With Giant Swivel Seal

DE LUXE TANKIT has been announced, incorporating an ordinary 1¼" x 1" seal for stopping leaks in fueloil storage tanks, and a new giant swivel seal, covering 18 sq. ins. of tank area. The seals

TURB-O-TUBE

PUTS MONEY IN YOUR POCKET!

Turb-O-Tube's economical operation, easy installation, and low initial cost make it the fastest-selling heating unit on the market. Increase your new housing and modernization sales. Sell TURB-O-TUBE!



The reasons —

- new economy — every bit of heat is utilized by patented Turb - O - Tube construction.
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- parts easily accessible for inspection, cleaning.
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Capacities up to 150,000 BTU's. In loboy, HIBOY, hang-up models.

Made in Canada by Conroy Mfg. Co., St. Catharines, Ont.
For further information write to—

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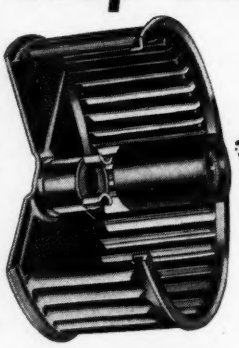
106 Kingsley St. Buffalo 8, N. Y.

Stop Burner Trouble BEFORE IT STARTS



with

LOVEJOY L-R FLEXIBLE COUPLINGS

Installed with a new burner or put on an old one, these quiet couplings correct for shock, vibration, starting torque, overload, misalignment, surge and backlash. Thus, they stop many burner troubles before they start. Most fans supplied with L-R jaws on hubs at no extra cost.

Write for Bulletin 532 and prices.

LOVEJOY FLEXIBLE COUPLING CO.
5012 W. Lake Street Chicago 44, Ill.

Mfrs. of Lovejoy Flexible Couplings for all industrial services. Lovejoy Variable Speed Transmissions and Lovejoy Universal Joints.

for ordinary leaks are positioned under the break and tightened with a metal locking strap. The new large seal is applied with two locking bands and is intended for use on porous tank areas.

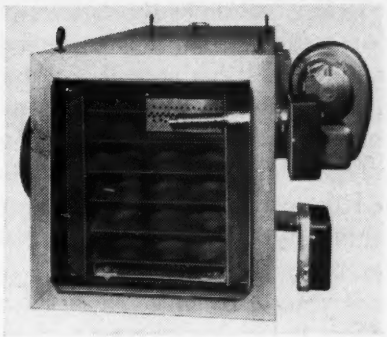
Tankits are not intended for permanent application, but are used in emergencies and to permit the tank's continued use until replacement of the basement storage can be made. Addition of the new device enables a dealer to service tank leaks of almost any kind with a single kit, with the seals reusable.

Made by: Tankit Co., Cedarhurst, L. I., N. Y.

Fairbanks, Morse Adds Line of Suspended Furnaces

HORIZONTAL, SUSPENSION-TYPE furnaces have been added to the Fairbanks, Morse line of heating equipment, featuring a stainless steel combustion chamber and a corrugated 12 gauge steel heat exchanger. The combustion chamber is designed for maximum heat transfer, with tubular stainless steel double the usual thickness. A heavy steel inner-liner is another feature for durability.

The unit is constructed so that it can

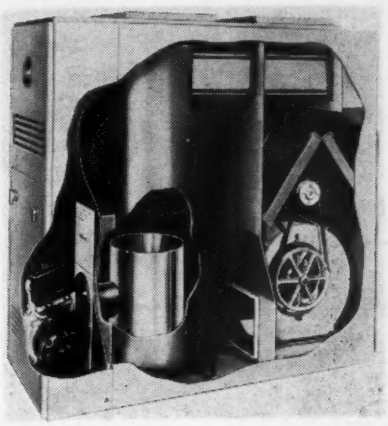


be converted to floor installation by standing it in an upright position and turning the burner, controls and inspection plate ninety degrees.

Made by: Fairbanks, Morse & Co., 600 South Michigan Ave., Chicago 5, Ill.

Two Bryant Furnace Units Are Fired With Gun Burners

TWO MODELS of winter air conditioning units produced by Bryant Heater Div., Cleveland 10, Ohio, are fired with high pressure gun oilburners. A vertical type, model 309 is fired at a .8 gph rate and delivers 85,000 Btu output. Model 308, illustrated, is available in two sizes, 85,-



000 and 106,000 Btu output, fired at gallonage rates of .8 and 1 gph. ABC burners are standard for each model.

Both units are shipped from the factory completely assembled and require the mounting of oilburner, controls and external connections for installation. Stainless steel combustion chambers are standard. The vertical model is furnished with 20 x 20 x 2 air filter for bottom location or 20 x 25 x 2 for side or rear location.

Made by: Bryant Heater Div., 17877 St. Clair Ave., Cleveland 10, Ohio.

ANNOUNCING

A NEW, LOW PRICED

Skinner drip-eliminator or shut-off *Valve*

for better oil burner service!

Model V2-100

You can't beat the NEW V2-100 Solenoid Valve for dependability on original burner equipment or for service satisfaction. This very compact valve has such quality features as sturdy steel construction with all parts plated to resist corrosion — soft synthetic seat and seals to prevent leakage — spring loading for positive closing — *no* brazed, welded or soldered pressure *joints* — usable in any position — weight, only 9 oz. Maximum pressure is 125 p.s.i. The NEW V2-100 is two-way, normally closed, rated at 10 watts maximum and is Underwriters' approved.

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Reader's Problems

Q. The front cover of the June issue has been raising much speculation around our office and perhaps you can resolve our confusion.

What is the contraption that looks like an ordinary tin funnel into which the delivery pipe extends? Is it some special device with threaded connection for the pipe nozzle that usually threads into the end of the nozzle? Or some other anti-spill device of which we are as yet unacquainted?

J. N. F., Baltimore, Md.

A. The funnel-like device is exactly what it seems to be. It is an ordinary large funnel. It has no special features or special threads. The company using it gives several reasons for its use of the funnel including saving grass around the fill cap, avoiding splashing, easy fitting to all types and sizes of fill lines and fill caps, etc. An important item is that the driver in the photograph likes to use the funnel. He's always got it with him. Encountering a fill box like the one in the photograph, he wouldn't dream of delivering oil without using the funnel.

That this installation has no VENT-ALARM signal must be obvious. Perhaps the driver does not tight-couple to the customer's tank, in a way you may have been discussing in your office among other things, because he wants to make certain that oil will not geyser from the vent cap if he overfills.

* * *

Q. Should there be black soot in the boiler on the walls or should the fire be adjusted so as to leave a white film? I've only been a service man a short time but it seems that every boiler has too much soot. Some have it blown out on top of door ledges, top of boiler, and even on the floor. Could you tell me where the trouble might be so I could correct it? Even in a new boiler using soft brick the boiler seems to be sooted too much. Thanks for your help.

G. J., Greenlawn, N. Y.

A. Of cours, it is preferable to have no deposits of soot in an oil-fired furnace or boiler, and it is true that never must soot be cleaned from the flues of certain installations. The extremely clean combustion achieved on these installations results, in the case of pressure burners, from such things as:

1. Use of an oilburner of extremely good design, particularly with respect to the air-handling parts at the firing end of the gun tube.

2. Use of an excellent atomizing nozzle of exactly the characteristics needed for the particular installation; half a dozen new nozzles may have to be tried for a difficult installation.

3. Excellent design and construction of the firebox; see p. 124 of the April 1950 issue of FO&OH to gain an idea of the design and construction of an

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Course Includes:
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K&K BOILER CLEANER AND STEAM CONDITIONER

exceptional firebox; study the use of the best over-fire baffles to install for the purpose of obtaining cleaner combustion on ordinary installations; study how to build fireboxes that become cherry red-hot within five minutes after a cold start.

4. Using fueloil which, compared to the other available fueloils, is of especially high quality and exceptional in its ability to burn clean.

5. Avoiding, where feasible, extremely short oilburner "on" periods; using "on" periods of 15 or 20 minutes where previously two or three minute "on" periods were used by error, not for good reason. Short "on" periods may be used of necessity or for good reason.

6. Firing furnaces and boilers which have the characteristic of assisting the flame in burning clean; hard firing and high temperatures for the direct heating surfaces help greatly; cool direct heating surfaces tend to become soot-coated; high stack temperatures help in general, certain boilers and furnaces which give about 900° stack temperature never need flue cleaning, though they do waste oil because of high stack temperature.

By all means use furnace cement to seal the gas leaks of the boilers from which soot escapes.

To gain knowledge and experience, concentrate on at least one installation. Using an excellent oilburner, control set-up, atomizing nozzle, and fueloil, you should be able to arrive at such clean combustion on one job that the direct heating surfaces and flues never need cleaning. You will learn what is needed to produce the kind of clean combustion you are dreaming of, and you'll be able to conclude whether or not your efforts towards clean combustion are worthwhile and can be profitable to you.

Page 172, also of the April 1950 issue of FO&OH, gives details of the production-line methods used by one dealer to arrive at somewhat cleaner combustion on typical low-priced gun burner installations. You may be able to use these ideas or work out similar methods that fit the installations you are encountering.

Judge clean burning during the coldest months, when burners run many hours a day. A soot film formed on the direct heating surfaces during other months often burns off during the coldest months.

Clock thermostats help clean burning by causing burners to take especially long "on" periods on cold mornings.

* * *

Q. We work on few makes of burners. Our pet makes more noise with the spark on. We question why another make we often service makes more flame noise with the spark off, as we have to switch to steady spark to quiet it.

E. V. S., Brooklyn, N. Y.

A. Use a flame mirror to study the flame front of the second burner with the spark on and off, and probably you'll find that with the spark off the flame bounces towards and away from the nozzle. Keeping the spark on eliminates much of the bouncing and pulsation. The other burner probably tends to give a blowtorch sound with the spark on.

* * *

Q. I am very much interested in learning if you can help me with the summer hot water degree day system. We now have about 2,000 accounts west of Philadelphia on the automatic deliv-

AUTOCRAT OIL BURNERS

OFFER HEAT PLUS ECONOMY

FOR YOUR CUSTOMERS

with the NEW COMBUSTION HEAD

This famous Autocrat Line is one of the oldest and finest in America. As a Dealer, you can safely recommend Autocrat Oil Burners to your customers. You may promise efficiency, dependability and economy . . . and Autocrat with the new Combustion Head will live up to your promises. Write at once for prices and liberal Dealer discounts.

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Controls Stack Heat Loss—

FIRE-SWIRL controls stack loss by using the upsurge of hot gases from the combustion chamber.

HERE'S HOW—The impeller blades of FIRE-SWIRL act upon the upward rushing hot gases, swirling them around and around the furnace or boiler walls. This swirling turbulance, scrubs away the film of *stagnant gases**, resulting in a far greater heat transfer and lower stack temperature.

**A major cause of excessive stack temperature and general inefficiency of conversions.*

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stallations the burners run two hours a day in summer.

At the end of the heating season, start filing customer cards by months, not by degree-days, and do this until the date you consider the start of the heating season, say Sept. 1 or 15. If on June 15th you can figure there's 200 gallons in the tank of a customer using 100 gallons a month for water heating, you could figure that at the end of July this customer's tank would hold 50 gallons. Use simple arithmetic to schedule the next delivery for the calendar day on which there should be a reserve in the tank of 50, 60, or 75 gallons. In the card file, use separators marked by months, half-months, weeks, or days to suit you.

The advice of the man who originated the K-System is to obtain during late summer or early fall exact data on the amount of oil in each customer's tank, and to start out using degree-days and K-Factors again in fall, perhaps on Sept. 1 or 15, only with an accurate figure for the amount of oil in each customer's tank. Your records will not contain good data on tanks to which you have not delivered oil for three or four months, therefore your oil truck drivers and customers probably will have to measure the amount of oil in many tanks to permit you to start the heating season properly.

Don't depend on estimates of the amount of oil used in summer for water heating when you start the use of the K-System in fall.

Bear in mind that the monthly consumption of oil for water heating is apt to change considerably in certain homes. It often goes up or down 20% to 50% because of a change in the efficiency of the burner and water heating layout, the installation of a washing machine, the family's taking vacations, or guests in the house for a week or two. Rough estimates of the summer monthly oil consumption can be used satisfactorily, but computation errors that accumulate from using them must be kept from causing unsatisfactory operation of the K-System during the heating season.

* * *

Q. Our elevation here is 3,640 ft. above sea level. How much effect does our elevation have on the capacity of pressure oilburners? Have you any suggestions on how to make vaporizing burners perform better?

L. D. H. C., Bend, Oregon

A. To compute the effect of your high elevation on the gph rating of a pressure burner, you have to start with the performance curves of the particular blower used in the particular burner model. The reduced density of the air at your elevation causes a drop in the pressure at which air is delivered to the gun tube by the blower. In addition, the output of the gun tube would be lower because of the reduced density of the air at your elevation, even with no reduction of the static pressure at the input end of the gun tube. Adding these two factors gives an appreciable drop in the gph rate of a burner used at high altitude. The drop can be calculated only by starting with engineering, blower performance data obtained from the manufacturers of the blower and burner models which interest you. Applying judgment and considering pressure burners of typical designs, we'd say that at your elevation the gph rates of the burners are dropped no less than 11%

THIS ANCHOR OIL BURNER GIVES HOME OWNERS WHAT THEY WANT . . . AND DEALERS WHAT THEY NEED.

The dependable, low cost operation of the Anchor Oil Burner means SATISFIED, HAPPY OWNERS. The simple installation requirements and minimum service calls mean *More Profit Per Job For Dealers.* It's the ideal unit for new furnaces and for conversion jobs, too!

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DOYLE VACUUM CLEANER CO.

233 Stevens St., S.W. Grand Rapids 7, Michigan

ery system. This works out well with the exception of domestic hot water. We would appreciate your comments as I can find no developments in the last five years.

S. S. C., Jr., Malvern, Pa.

A. First, the problem of which homes use oil for heating on mildly chilly mornings in spring and autumn, and which homes do not, is highly important with relation to the summer delivery problem you mention. Half the home owners on a certain street may use oil for heating on a certain spring morning, half may not. From your office you cannot tell which home owners are using oil for heating on this certain morning and which home owners are not. During two weeks of chilly spring or fall weather, in some homes no oil will be used for heating, in others of the same size and K-Factor from 15 to 75 gallons of oil will be used for heating.

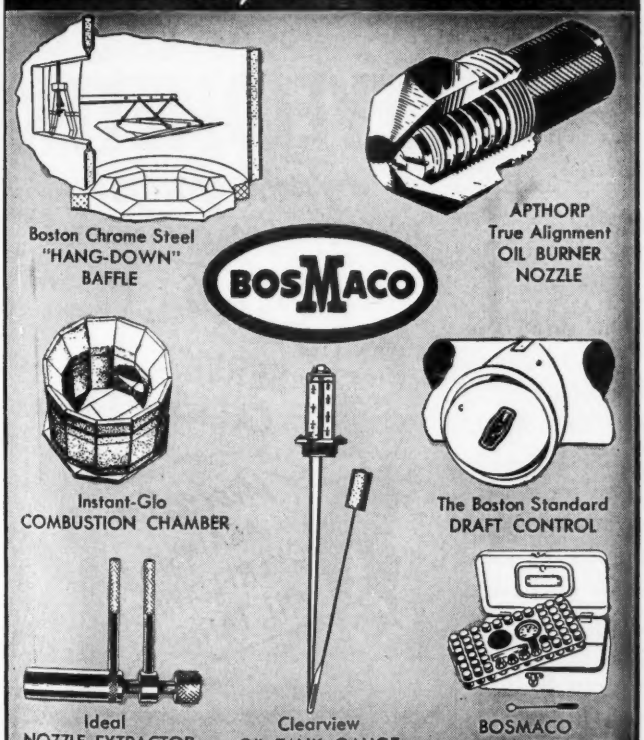
The only method for handling this problem is to refer to and be guided by your records of previous years. From these records you may be able to learn, for example, that in two weeks of weather averaging 63° mean outside temperature, Mrs. Jones with a K-Factor of 3.8 usually uses 12 gallons of oil for heating the house, while Mrs. Smith with the same K-Factor uses 60 gallons. Bear in mind we are assuming that neither customers uses oil for heating water.

The only method you can employ to alter your automatic delivery system to make it more accurate for mild weather oil consumption lies in using a different type of degree-day. Extensive field check-ups show the use of a 70° base degree-day helps the mild-weather problem. The man who invented and developed the K-System for making automatic deliveries (the system in which a K-Factor is used) has developed what he terms the "corrected degree-day" especially for most accurate application of the K-System. For outside temperatures between 30° and 70°, each degree below 70° is one degree-day, but for weather colder than 30° each degree below 30° is added up as one and one-half degree-days. The complete story of this is in our new book entitled "Fueloil Handling," available at $1.00. See p. 27 for the details of six reasons why the use of the corrected degree-day gives greater accuracy in operating the K-System. The book contains many additional details on the K-System which should be studied by those who desire to use this system at its maximum effectiveness.

Considered separately from the problem of mild weather consumption of oil for heating, the consumption of oil for summer water heating is a simple problem. To start out, you must use some method for estimating the number of gallons of oil used monthly by the particular customer for heating water in summer. Later this will be checked just as the first K-Factor you use is checked later after you make several deliveries.

Certain oil suppliers usually figure, for example, that in a typical six-room house from 50 to 100 gallons of oil are used a month for heating water in summer. Or, knowing the firing rate of an installation or obtaining it by dividing the heating season oil consumption by, say, 1500, you can figure that on the most efficient installation the burners run a total of one hour a day for water heating in summer, and on inefficient in-

FOR Quality INSTALLATIONS



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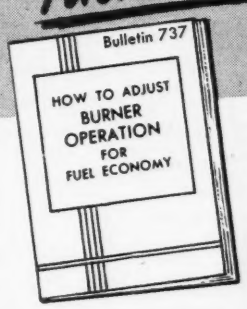
BOSTON MACHINE WORKS COMPANY

Oil Heating Supplies Division, Manufacturers, Lynn, Mass.

Fuel-Saving SERVICE Simplified



Fuel economy and heating comfort depend on proper fire size more than on any other single factor. Correct adjustment of burner on-and-off cycling and gph-rate can be made quickly and dependably by an amazingly simple test which requires only the recorder shown below and takes less than 20 minutes of a service man's time.

FREE FACTS

The simple procedure of the heat test for adjusting burner operation for minimum fuel consumption and maximum heating comfort is clearly and completely described in the bulletin above. The bulletin also explains how this heat test dramatically demonstrates the need for replacement of an obsolete installation thus opening the way for profitable replacement business. Write for your free copy today.

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CLASS 50 Direct-drive pumps for *light oils*

Roller tolerances permit handling extraneous matter that would jam other mechanisms. Good suction characteristics. Capacities 60-600 GPH; pressures to 100 psi.
Ask for Bulletin A-1330

CLASS 60 Reduction-drive pumps for *heavy oils*

Time-tested Kraissl design for direct burner supply—or as booster pump. The pump that will pull heavy oil when it is cold. Capacities, 75-1800 GPH; pressures to 100 psi.
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Please send me bulletin A-1330 and/or bulletin A-1193 . . . with full information and specifications on Kraissl Fuel Oil Pumps.

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water. The steam includes entrained water droplets which can carry much dirt. Surging, foaming, and priming toss the dirt out of a boiler into the steam lines, and occur especially when the boiler water is dirty. Therefore you can't expect a dirty boiler to give clean steam.

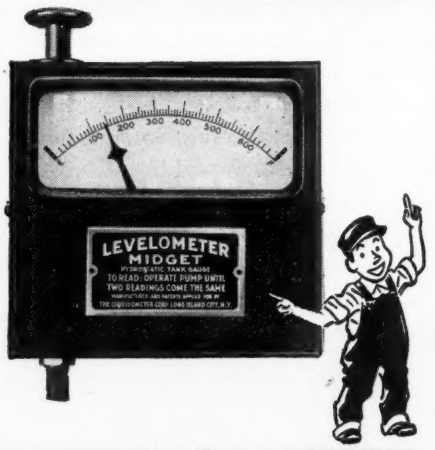
* * *

Q. Please see pages 146 and 174 and 175 of your April, 1950 issue. On the first page is a recommendation by Dole Valve Company that a mixing valve be located below the source of the heat for hot water, to let the valve cool when no hot water is being drawn and to gain many important advantages. On the other pages, in your "Everyday Snags," you show two mixers located high up, where they'll always be hot. Seems to us that your different pages do not agree with respect to proper locations of mix valves.

B. P. T., Tiffin, Ohio

A. The letter from Mr. J. F. Lund, Dole Valve Company, was printed in the form we received it and explains why this company recommends that its mixing valves be installed in a certain manner developed by the company. While there are no reasons for not installing other makes of mixing valves in the same manner to gain the same alleged advantages, it is not established that all manufacturers and well informed installers of mixing valves agree that such valves should be installed low, where they will cool when idle. On actual installations, many Dole valves are installed low in accordance with the manufacturer's instructions, of course, but often other makes of mixing valves are installed otherwise.

A GOOD GAUGE COMPLETES A GOOD INSTALLATION



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"THEY'RE ALWAYS DEPENDABLE"

"LIQUIDS WORTH STORING ARE WORTH MEASURING"

THE LIQUIDOMETER CORP.
36-19 SKILLMAN AVE., LONG ISLAND CITY, N.Y.

GORTON VALVES
ARE QUICK VENTING

Made with 5 sizes
of air outlets
No. 4, 5, 6, C and D
Standard ⅛" side connection
For Radiators

THE SOLUTION TO
STEAM HEATING PROBLEMS

WRITE TODAY FOR
LITERATURE AND PRICES

GORTON HEATING CORP.
SINCE 1887
Manufacturers of High Grade Heating Equipment
CRANFORD • NEW JERSEY

No. 1
Gorton Air Eliminator
⅜" vertical connection
For Mains and Unit Heaters

and no more than 18% to 20% below the sea level ratings. We suggest that you assume tentatively a 15% drop in gph ratings of the burners you handle, and make a practical, on-the-job check on this assumption on the first new installation that invites this. You should check also to find out if you can obtain for your burners slightly larger blower wheels to offset the effect of your high altitude. You might need these odd-size wheels only for the occasional installations, perhaps one out of five or ten, on which the burners should fire at close to their rated gph maximums.

We cannot give you in a few sentences helpful advice on making vaporizing burners perform better. Our new book, Vaporizing Burner Service, is available at $1.00 and contains dozens of ideas on obtaining good performance from such burners.

* * *

Q. The idea keeps cropping up that a low vacuum at the intake of a pump on an oilburner tends to overwork or overload the pump. A man who's worked on horizontal rotary cup burners for years say a 1" suction line should be used for a job supposed to handle any kind of No. 5 oil. Installing a 2" line because perhaps No. 6 oil may be used in the future, he says, may ruin the oil pump while No. 5 oil is used.

R. J. Y., Paterson, N. J.

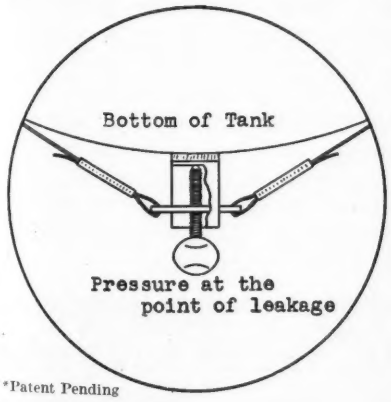
A. The man is wrong, as all equipment manufacturers interested in the problem agree. If he is really well informed and the extra money for the larger suction line will come out of his pocketbook, his argument probably represents only his unwillingness to install the larger suction line. A pump is helped, not hindered, by lower vacuum at its intake. With large lines, the pump intake vacuum could be increased easily, if for some far-fetched reason this were desirable, by closing somewhat a valve in the suction line, installing in the suction line a short length of small size pipe, or using some other simple, inexpensive means for creating a pressure difference or restriction in the suction line. It's an excellent idea to install a 2" suction line for this No. 5 oil job that may in the future be converted to the use of No. 6 oil.

* * *

Q. How does dirt from a dirty steam boiler get to the vacuum vent valves on the radiators and cause them to fail? Doesn't only distilled water come out of a steam boiler?

G. W. K., Columbus, Ohio

A. Dirt in the boiler water usually is a sign of dirt in the entire system. You can't assume that the steam produced by a heating boiler is 100% clean, and on being condensed will produce the equivalent of commercial distilled



*Patent Pending

WHAT HAPPENS IN YOUR ORGANIZATION

When An Excited Customer Calls To Report A Leaking Tank?

Here's the simple answer. Equip every service man and truck driver with a *Natco Pressure Patch. Applied in less than five minutes without the use of tools. Then handle the replacement at your convenience.

Pressure is applied at the point of leakage by neoprene patch. Tank band and metal parts cadmium plated. Can be used over and over again. Reasonable prices—write or wire for complete information.

NATCO PRESSURE PATCH CORPORATION
4800 E. Wabash Avenue **Baltimore 15, Maryland**

(AVAILABLE TO JOBBERS AND DISTRIBUTORS)

RAYFIELD BURNERS FOR No. 4 or No. 5 HEAVY OILS

MODEL JR.
1.00 to 5.00 GALS./HR.
MODEL D4
3.00 to 12.00 GALS./HR.

1. Fully Automatic
2. Self Cleaning Nozzle
3. Self Lubricating
4. All Electric Operation
5. Pays for itself from savings
6. Burns the cheaper No. 5 oil

RAYFIELD AUTOMATIC

HEAT RECLAIMERS

1. Low in Price—Automatic—Easy Installation
2. Installs on Boilers, Furnaces or Stoves
3. For use with Coal, Gas, Oil or Wood
4. Increases output of ANY gravity warm air furnace
5. Heats Basements, Play Rooms, Garages, etc.
6. The hotter the stack—the more heat reclaimed
7. Saves wasted heat now going up the chimney

PATENTED COMBUSTION HEAD OIL BURNERS for CATALYTIC OILS TO #3 GRADE 2 MODELS 1.00 to 3.00 GALS./HR. CAPACITY

1. Amazing Economy 12 to 15% CO_2
2. Clean boilers with perfected combustion
3. Burns Catalytic oils easily
4. Quiet—No Vibration or pulsation
5. Cuts user's oil bills 14 to 36%
6. The ideal replacement oil burner

C. L. RAYFIELD COMPANY • 2010-18 SO. HALSTED ST. • CHICAGO 8, ILL.

Q. How do I get out of this one? I've always been proud of my low stack temperatures. Now an owner says he's got draft trouble only because of low stack temperature. It's a two-story house, 1.5 gph, stack now up to 575°, .04" maximum smokepipe draft.

P.N.J., Chicago.

A. Under the standard conditions of at least 600° stack temperature and at least 8% CO_2, you can blame the chimney if with the draft regulator held in its maximum-draft position the chimney does not develop at least .10" draft. Your 575° stack temperature is close enough to 600° to rule out low stack temperature as a cause of insufficient chimney draft.

Q. May I have your help on the following: I wish to supply a trailer camp, community bath and laundry with adequate hot water.

There will be forty trailers parked in this camp, four showers, six lavatories, two two-part laundry trays, and two Bendix washing machines.

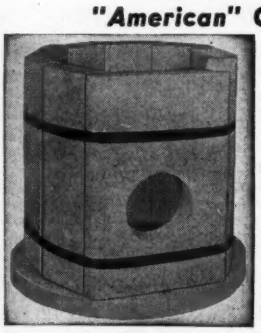
Boiler room is small and we want to have automatic hot water.

We are planning to use a steam boiler with oilburner. There will be three 150 EDR unit heaters on this job with separate thermostats and reverse acting pressure controls.

We plan to use a Dole Flo-Control valve on the line to the showers and laundry (if possible).

Any help you give me will be appreciated. *F.K.E., Peabody, Mass.*

FOR BETTER HEATING
"American" Combustion Chambers



American chambers for domestic oil burners are recognized for these features:

BETTER PERFORMANCE — American light weight refractory chambers give you fast heat-up, quiet operation and fuel savings that mean satisfied customers.

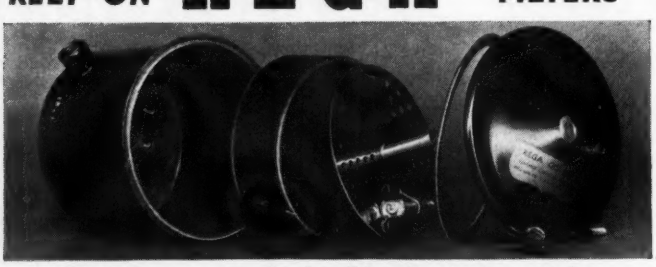
HIGH QUALITY—Only high grade refractories built to withstand 2500° operating temperatures are used.

EASY INSTALLATION—Controlled manufacturing and careful design give you flexible pieces that fit together with a minimum of effort.

We invite your inquiries on standard or special shapes.

THE AMERICAN CLAY FORMING COMPANY
TIFFIN, OHIO
Twenty-seven years making quality refractories for the heating industry.

YOU CAN RELY ON REGA OIL BURNER FILTERS



- Oil flows *upward*—allowing dirt and water to separate.
- 1½" sludge trap prolongs life of cartridge.
- Oil cannot by-pass filtering element.
- Cartridge easily changed by removing thumb screw.

SEND FOR FULL DETAILS NOW!
REGA MFG. CO., 99 MT. HOPE AVENUE, ROCHESTER 20, N. Y.

U/L approved

BETTER CHEAPER

A Low-Pressure burner with 22 less parts than any other, takes much less power to run. Better atomization at 1 to 2 pounds pressure.

Easy to install. Any good service man can service, not necessary to attend special service schools.

Air and oil mix in nozzle, Patented feature prevents change in flame density. Airflame cone drives fan air to center of oil mist. Lifts own fuel from buried tanks.

Franchises to local installers or to state distributors.

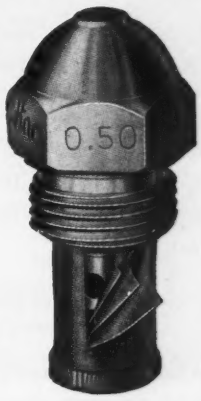
AIRFLAME, INCORPORATED
648 McAlister Ave. Waukegan, Illinois

ANNOUNCING

The Hago 3-stage-strainer!

ALL METAL! CAN BE CLEANED!

Oil is filtered through two layers of 200 mesh and one of 150 mesh wire cloth for removal of the smallest particles of foreign matter. Recommended for small capacity nozzles.



Hago Products - 1281 Springfield Ave., Irvington 11, N. J.

A. Seemingly, you plan to use the heating boiler to provide summer-winter hot water. You will have to decide whether to use a tank-type indirect water heater together with a hot water storage tank, with the tank high over the boiler to fit the equipment into the small boiler room, or a tankless type indirect water heater and a boiler somewhat larger than you would use otherwise.

For the 450 sq. ft. steam unit heater load, heating boiler capacity equivalent to a firing rate of 1.75 to 2.0 gph is needed.

To provide a luxurious abundance of hot water even at times of peak load for the occupants of 40 trailers, install a 400-gallon hot water tank if you use a tank-type layout. Heat this by a tank-type indirect water heater capable of providing at least 550 gallons of hot water in three hours, 100° rise basis with the boiler water at 180°. Because this water heating load requires the output of about 1.5 gph oil firing, install a boiler that can be fired up to 3.25 or 3.5 gph if the peak water heating load and peak heating load often will be on the boiler at the same time. For loads that do not reach peaks simultaneously, a boiler fired between 2.5 and 3.0 gph will serve nicely.

If the trailer camp owner is price-conscious in buying the boiler room equipment, if he anticipates that usually the occupants of only 25 or 30 trailers will be using hot water on any particular day, and if he wants to take chances on getting occasional complaints about hot water, then you might install a hot water tank as small as 250 gallons, use an indirect heater about half the size described above, and install a boiler suitable for 2.5 gph firing rate.

Insulate the hot water tank well, install it horizontally and as high as feasible, follow the piping instructions of the manufacturer of the indirect water heater, and equip the tank with a temperature control that will keep the oil-burner idle in summer when the hot water tank is hotter than, say, 150°. The tank temperature control gains considerable fuel economy. Set the boiler temperature control as high as possible without causing the boiler to steam when hot water is needed from it in summer.

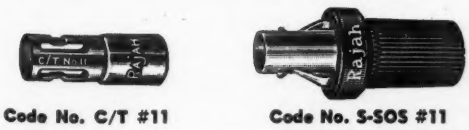
If you want the neat, inexpensive job that would come of avoiding use of a hot water tank, install a tankless water heater capable of providing from 15 to 25 gallons-per-minute of hot water, heated over a 100° rise with the boiler water at 180°. A 15 gpm tankless heater would provide barely enough hot water; a 25 gpm heater would provide an

RAJAH TERMINALS

FOR OIL BURNER SPARK PLUG IGNITION CONNECTIONS

Made in Two Styles

CRIMP TYPE and SOLDERLESS



Code No. C/T #11 Code No. S-SOS #11

THE RAJAH CO. BLOOMFIELD, NEW JERSEY

"Be Penny Wise— Economize"

Buy your oilburner parts, accessories and materials from us. We have satisfied customers all over the country. Give us a try!!

THRIF-T-HEAT JET FLAME BURNERS & No. 5 & 6 Oil Rotaries.

Westchester Home Equipment Co.

432 Austin Place New York 55

KLEENMASTER Makes Servicing Profitable

Eliminate your service loss on oil accounts. Kleenmaster grosses $7.00 per customer after selling expense and labor.

Keep your Drivers and Servicemen busy during the summer slack.

The "Big Bag" with your name in large type gives you "Billboard and Soundtruck" advertising.

Write for details including
Sales Manual and Profit Analysis

MOLLOY MACHINE CORPORATION

3445 N. Western Ave.
CHICAGO 18, ILL.

abundance. Play safe and consult the manufacturer of the tankless heater before deciding finally on the size. Ask also about the boiler size and gph rate needed. Sufficient boiler capacity for firing at a high rate will be needed to prevent chilling of the boiler when the hot water load continues at its maximum for 15 or 20 minutes.

Give the Bendix washers water as hot as your equipment can provide, but by all means use a mixing or tempering valve for the lines to the showers, lavoratories, and laundry tubs. This applies for tank-type and tankless layouts.

* * *

Q. In order that we can pass on this information to the oil company we are serving in making a survey of matters pertaining to satisfaction with oilheating, kindly give us data on the troubles that cause home owners to telephone equipment installers for oilburner service.

C. N. L., New York.

A. The three most important causes of service calls involve attention to nozzles, cleaning and adjustment, and electrical controls. The items in this group and the following groups are not in order of importance.

Troubles with ignition systems, fuel units, and electric motors come next in importance.

Fewer service calls seemingly are caused by oil leaks and oil odors, empty oil tanks, customers' believing the oil is inferior, fuses blowing, actual or imag-

MAR-COIL SILENCERS
PREVENT WATER HAMMER!

MAR-COIL SILENCERS

SIZE	Cubic Inches of Cushion
½" Type A	9 cu. in.
½" Type B	17 cu. in.
¾" Type C	33 cu. in.
1" Type D	55 cu. in.
1¼" Type E	103 cu. in.

ELIMINATES WATER HAMMER FROM HOT OR COLD WATER LINES!

Eliminate dangerous and annoying water hammer with MAR-COIL silencers. Available in five sizes to correct every job. Install easily in upright position and require no adjustment. Made of all polished brass and copper. For Homes, Apartments and Industry. On Tankless Heaters, Washing Machines, Dishwashers, Pumps, etc. Install as near as possible to the fixture that hammers.

We also make: **BOILER STANDS • FUEL OIL TANK GAUGES • TANKLESS HEATERS • TEMPERING VALVES • STEAM MOTORIZED GATE VALVES**

MAR-COIL HEATER CO.
200 PATERSON PLANK ROAD, UNION CITY, N. J.

Sundstrand

an oil burner for every heating job

- All Surfaces Machined • Precision Made Throughout
- Completely Fire Tested
- Variable Tube Lengths To Fit YOUR Requirements
- Flange Mounted
- Meet All Local And State Requirements

Write Us For Complete Information

SUNDSTRAND ENGINEERING COMPANY
ROCKFORD ILLINOIS

IN YOUR FIREBOX

See at once real combustion improvement, all types of fuel.

STOPS DOWN DRAFT • SAVES FUEL
ELIMINATES CARBON DEPOSITS

Frequent burner adjustments and cleaning unnecessary because flues are kept dry always by THERMCAP. (Formerly Wigwam Flue Doctor) Controls draft at the top of the chimney. Satisfaction guaranteed. Mailable. For lit. and profitable dealer offer, address: Wigwam Flue Top Company, Abington, Mass.

QUICKLY AND EASILY INSTALLED --

REX RoTo *Combustion Chambers*

IN ANY STYLE FURNACE—WITH ANY MAKE BURNER

The user benefits through higher combustion efficiency and longer life. The installer through the easy and quick installations. No cutting or cementing necessary.

"NO BREAKAGE" PACKAGING

REX ROTO Combustion Chambers are individually packed in our exclusive TIME TESTED-CONSUMER APPROVED shipping container. It is designed to withstand numerous handlings.

WRITE TODAY

Instant COMBUSTION EFFICIENCY

Immediate SAVINGS

GET FULL INFORMATION

REX RoTo CORP. 14400 DEXTER BLVD. DETROIT 6, MICHIGAN

ined discomfort caused by burner or heating system characteristics, and excessive sound.

The experiences of different equipment dealers are widely different, depending for one thing on the size and type equipment installed mainly by the particular dealer. For example, one dealer found last year that for the first time flame sound and pulsation were his most important causes of trouble, and relates this to the low-capacity furnaces he sold in great numbers. Another dealer declares the inferior motors on the burners he bought caused many service calls. Still another blamed inferior fuel units of a certain make for most of his service calls.

* * *

Q. Regarding the short-short service article on p. 80 of your last September's issue, what are the certain advantages of providing an inside-tank pressure burner with a return line?

I. N. D., Pittsburgh.

A. Mainly reduced tendency to air-bind, and increased chances of the owner's being able to start the burner himself, with no air-ridding of the fuel unit by a service man, after he runs out of oil. Perhaps because the oil feed lines were warm and had high spots in them, inside tank jobs of the one-line type have developed air-binding trouble in a puzzling manner. This has been cured by equipping them with return lines.

To obtain the benefits of the two-stage pumps in certain fuel units, a return line must be used.

CLEANER Oil Burner Liquid

for all

OIL BURNERS

MILOS SYSTEM DEVICES REG. U.S. PAT. OFF.

WHAT IT DOES:

- Helps remove soot.
- Increases B.T.U.'s.
- Helps dissolve and remove gum deposits, sludge and water.
- Helps overcome oil odors.
- Retards rust and corrosion.

Write for prices and dealer discounts!

MILOS SYSTEM DEVICES

94 Lakeview Avenue Clifton, New Jersey

HEATING OIL DISTRIBUTORS

Customers, old and new, are coming in now to arrange for loans on their receivables. They want to be sure that they will have the money to do the most profitable business they can this coming winter.

If you cannot get enough money from your bank and don't want partners, we suggest that you investigate our proposition.

Write for descriptive circulars

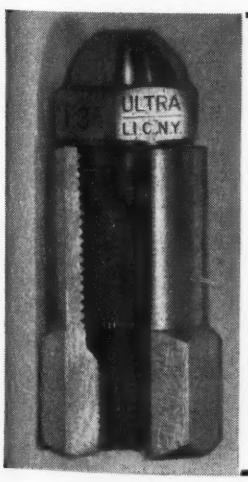
LEXINGTON CORPORATION

M. S. Lurio, Pres.

Fuel Financing from Maine to Maryland

10 Milk Street Liberty 2-6878 Boston, Mass.

New York, N. Y. Baltimore, Md.



Burn Catalytic Oil More Smoothly With

ULTRA

OIL BURNER NOZZLES

PARTICULARLY UNLIKELY TO PLUG AT LOW G.P.H. RATES.

A stainless-steel nozzle made of 3 parts: strainer-disk-tip. Precision-built in design and construction. The ultra nozzle performance is reflected in absolute uniform atomization.

Write for details TODAY!

Ultra Metal Utilities Corp.

27-07 ASTORIA BOULEVARD LONG ISLAND CITY 2, N. Y.

E-Z

MORE PROFIT PER *Service Call*

When the oil burner Servicemen answer a call it is easy many times to add furnace cleaning to the job. E-Z Fuel Oil Soot Destroyer (for fuel oil soot only) does a thorough, clean, safe job in just one application. Takes but a few minutes. Keep a 5 lb. Can on each service truck, always. Stock the 1 lb. Cans for sales to your customers. If your Distributor cannot supply you, order direct.

No. 1 Pkg. approx. 1 lb. . . .List $1.00 ea.

No. 5 Pkg. approx. 5 lbs. . . .List $4.50 ea.

Liberal discount to bona fide Servicemen.

Special discount to Distributors on quantity purchases, allows for extending regular discount to Dealers and Servicemen.

HEALY-RUFF COMPANY

797 Hampden Avenue • St. Paul 4, Minnesota

Use "CRESCENT PARTS" Service

SERVING THE ST. LOUIS TRADE AREA

Authorized Fuel Unit Service Station

Stoker and Oil Burner Parts

FUEL UNITS
TRANSFORMERS
ELECTRODES
COMBUSTION CHAMBERS
FILTERS
TUBING
FITTINGS
NOZZLES
CONTROLS
OIL TANKS

CONTROL

REPAIR EXCHANGE SERVICE

SEND US YOUR ORDERS OR INQUIRIES

CRESCENT PARTS AND EQUIPMENT CO., INC.
825-831 S. Boyle Avenue St. Louis, Missouri

STOKER & OIL BURNER M-H, PERFEX PENN

Belabor the Obvious

(*Continued from page* 84)

lem of oilburners and oilheating. It should be a place where a man can say frankly, "I don't know this. How do I find the answer?" It should be a place where a man can be shown how a valve or a control works. Trade literature, manuals, textbooks, specialized information about related equipment, should be available; and reading these things should be encouraged. And the head of the department should be selected on the basis of wide experience in the field, clear thinking, and progressive attitude. He should not be just a well-paid dispatcher, or the boss' brother-in-law, but a man who can go out to the job with a serviceman and help him.

Anybody who can see the btu-dollar relation betwen gas and fueloil knows that in many markets serious competition between the two fuels is far off. We know we have a twenty year head start over gas, and we realize the enormous investment necessary before gas can crowd us very much. But the needle they can constantly stick into us is the fact that some oilburners run poorly, and that our service methods don't improve them. It's our weakest point, and it could be the hole in the dike.

◈

ROCKFORD BRASS WORKS, Rockford, Ill., illustrates its line in an attractive three color folder. Included are items of interest to oilburner and fueloil dealers, such as oil barrel faucets, anti-hum valve, male oiler drain and a swing check valve. Each product is pictured, with pertinent data on sizes, model numbers and shipping weights included.

NEW YORK TECH

America's Outstanding School of

OIL BURNER

INSTALLATION
AND SERVICING

The School to Think of if:

YOU HAVE MEN TO TRAIN

or

REQUIRE TRAINED SERVICEMEN

Call or Write

NEW YORK TECHNICAL INSTITUTE

553—6th Avenue, New York 11, N. Y. CHelsea 2-6330

OIL BURNER MOTOR PLANT
FOR SALE

In view of impending scarcities, here is a rare opportunity to acquire complete facilities—including machine tools, dies, patterns, jigs and fixtures—for manufacturing UL-approved 1/6 and 1/8 hp oil burner motors. Plant, not now in operation, is located in Mid-Western city and must be moved. Complete supervisory assistance available for setting up in new location. Principals only. Write:

BOX 892 Fuel Oil & Oil Heat
232 Madison Avenue, New York 16, N.Y.

For More Profitable Jobs

NU-TROJAN
Combustion Chambers

A Product of McLeod & Henry Co., Inc.

Nu-Trojan Chambers have the features that lower installation costs and reduce servicing costs to help you secure profitable jobs. Has few parts, does not need steel bands to hold them in place. First quality "Steel Mixture" Pennsylvania fire clay. Fusing point 3180° F. Write Dept. 61 for details.

A. R. WEBBER CO., INC.
DEPT. 61
NEW HAVEN 11, CONN.

EVERYTHING FOR THE OIL BURNER TRADE

SOOT-GO
SOOT DESTROYER

STILL THE BEST for cleaning oil and gas-fired heating plants.

EFFICIENT AND ECONOMICAL TO USE

ALSO:

SLUDGE-GO for Cleaning Fuel Oil Tanks and Will Emulsify Water.

EZ-E WELD for Sealing Leaky Boilers. No After Odor. No Draining.

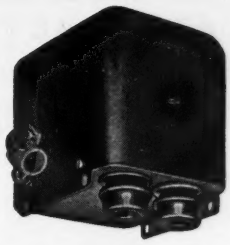
Write for name of nearest jobber

KALMIDE CHEMICAL CO., INC.
17 East 42nd St. New York 17, N. Y.

DONGAN TRANSFORMERS

They Have Stood the Test of Years

The best testimonial to the dependability of Dongan Transformers is that they have for years been standard equipment on leading makes of oilburners. Acquaint yourself now with the Dongan's many outstanding features.



Voltages from 5,000 to 20,000. A variety of sizes and mountings. Special types built to specifications.

Dongan Electric Manufacturing Co.
2981 Franklin Detroit 7, Mich.
"The Dongan Line Since 1909"

WRITE FOR LITERATURE

A COMPLETE LINE OF
OIL & GAS
AUTOMATIC HEATING EQUIPMENT

- √ CONVERSION BURNERS
- √ Boiler Burner Units
- √ Warm Air Conditioners
- √ FLOORLEVEL Baseboard Radiation
- √ Water Heaters

GENERAL Automatic
PRODUCTS CORP.
2300 SINCLAIR LANE, BALTIMORE 13, MD.

Oilheating Trends

(*Continued from page 12*)

that future sales would hold up better than material availability. To a limited degree they are no doubt right.

SUMMER FILL UPS: By August 1 approximately 59% of all domestic fueloil consumer tanks had been given a summer fill up. Last year on that same date 54% had been filled, with the slower activity due principally to dropping fueloil prices. Going back two years to August 1, 1948 we find that 69% of residential tanks had been filled. In that year of course, consumers were remembering the supply stringency of the previous winter and it was easy for dealers to get them to act.

Asked whether any particular sales effort had been put forth this summer to get customers not on automatic deliveries to order a fill up, 45% of the reporting fueloil distributors say that they made this effort and the other 55% did not.

LOCAL BULK STOCKS: Distillate fueloil stocks in the local bulk tanks of reporting fueloil distributors on August 1 were 37% higher than they had been on the same date of the previous year. This figure would be more useful if we had checked the stock position a year ago which we did not. It does however show that, with prices rising, the retail level of the industry is looking for further increases. Whether or not we get further price rises in No. 2 fueloil will depend largely on what happens to gasoline prices. If they stay up, fueloil will have to go up some more to bring out the necessary volume. There are some recent indications that gasoline may be due for some downward adjustment, which would put fueloil in a more favorable light at the refinery.

Stocks of No. 2 oil at refineries, terminals and in transport on August 5 in the area East of the Rockies were 47,860,000 barrels, compared with 58,331,000 barrels on the corresponding date of 1949. While that is an unfavorable comparison there is a bright spot in that picture. In the sixty days prior to that date stocks this year built up 43% while in the corresponding period of 1949 they built up only 20%. Thus, while we have an immediate unfavorable comparison yet we have an accelerating gain rate. If this acceleration is continued, as top men in the oil industry expect it to be, stock levels will pass those of last year in early October.

DEALER COMMENTS: Typical comments on questions of the month are these . . . "Gas has been closed in this area and we are now starting to sell more units" . . . "Why is there a large increase in tank prices when steel at the mills has not increased much?" . . . "We ordered enough pipe to finish the season but have not been able to get delivery yet" . . . "Here we go again—new prices twice a week" . . . "Business is excellent and we hope shortage of tanks won't put us out of business" . . . "Gas is still getting the bulk of the business in our market" . . . "With our Government trying to get us into another war we have lost several old customers to gas because they don't want to be rationed" . . . "In early August shortages of transformers had started with manufacturers very short of components and with price up $1.50 over July 15" . . .

McCORKLE CONTROLS are designed to GIVE—not require SERVICE
for Vaporizing Oil Burners

Less service means greater customer satisfaction—increased profits—more new business

- Patented dual blade bi-metal assembly—insures trouble-free operation—supplies a wide margin of extra power.
- More rapid heat transmission.
- Adjustable snap acting Micro-switch.
- Heavier, more rugged construction.

D. H. McCORKLE CO.
Box E, Station A Berkeley, California

BEAT COMPETITION

with the PACKAGE DEAL

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The Power volume, containing 20 sections, has been rewritten cover to cover except for a few sections that have been reviewed and retained because of their value. The volume is organized in groups of sections. The basic ingredients of any power process—air, fuel, heat and steam—are covered in the first four sections, followed by sections on the various categories of power utilization. The text, illustrated by drawings, and tables, was edited by J. Kenneth Salsbury.

The other volume of the new Kent's, Design and Production, has been renamed from the former Design, Shop Practice of the eleventh edition. The volume contains 28 sections arranged generally to cover Selection of Materials, Design Principles, Selection of Machine Components, Production Processes, Plant Equipment and Mathematical Tables. This volume is edited by Colin Carmichael.

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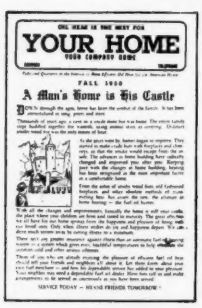
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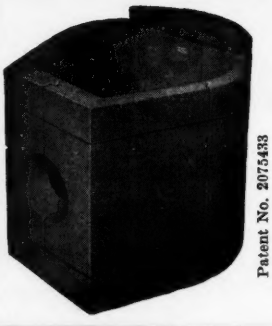

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